CHAPTER 24

BONDING

Revised 07/11/05

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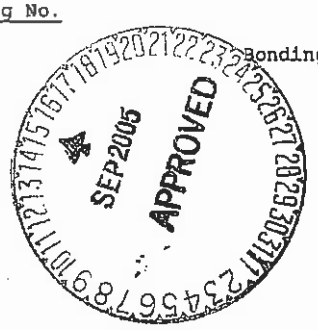


CHAPTER 24

BONDING

Introduction

The purpose of this chapter is to provide a reclamation cost estimate in accordance with 30 CFR, Subchapter J, with supporting documentation, for determination of a reclamation performance bond for disturbed lands at Peabody Western Coal Company's (PWCC) Black Mesa Mining Complex, including both the Kayenta and Black Mesa Mines. This document provides information regarding reclamation requirements for all disturbed lands within the Kayenta Mine AZ-0002A and AZ-0001D permit boundary and the proposed Black Mesa Mine area permanent program permit boundary. To facilitate review of reclamation and bonding requirements for the two separate operations, reclamation requirements and costs are broken out for each mine, as well as for the overall Black Mesa Complex. Reclamation costs and the corresponding amount of bond required were determined for a "worst-case" scenario assuming that, in the unlikely event of bond forfeiture, reclamation would occur at the point in time within the five-year permit term (2006 through 2010) when reclamation liabilities would be the highest. This condition would most likely occur at the stage in the mining sequence when the area from which topsoil (suitable plant growth material) has been removed is largest and the volume of material to backfill existing open pit areas is greatest. These conditions typically occur when the sum of all pit lengths is the greatest and the overburden is the thickest.

It was determined from the Mine Plan Map (Drawing No. 85210), Jurisdictional Permit and Affected Lands Map (Drawing No. 85360), and the Bonding Map (Drawing No. 89800) that the highest liability, or worse case, will occur in the year 2007. This determination was based on pit length, pit location, amount of box cut spoil, and disturbance ahead of mining (see Table 24-2-1 in Attachment 24-2). In addition, based on OSM's request, Peabody has included the existing J-7, J-16, J19-RA Pond, N-11, N-14, and N-14E mining disturbance areas in the bond calculations, even though these areas will probably be completely reclaimed by the worst-case year.

The reclamation calculations, costs, and backup documentation for all disturbed lands and facilities are provided in the following attachments:

Attachment 24-1	Cost Input and Summary Tables
Attachment 24-2	Areas/Volume Input Tables
Attachment 24-3	Mine Area (Category I) Worksheets
Attachment 24-4	Maintenance Area (Category II & IIA) Worksheets
Attachment 24-5	Facilities Area (Category V) Worksheets
Attachment 24-6	Exploration Bonds

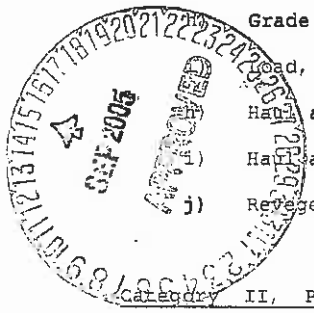
The Bonding Map (Drawing No. 89800) included with this chapter shows the various mining areas and the estimated mining disturbance areas in the year 2007. In addition, this map shows the location of the open pit in 2007 and associated support facilities.

Reclamation Area Categories

Table 24-2-2 summarizes the areas associated with each category of disturbance shown on Drawing No. 89800 (i.e., Category I to Category V). The Permanent Program regulation requires a reclamation bond for Category I, II, IIA, V, and the current mining support facilities. Categories III and IV are Interim Program or pre-law affected lands and no bond was required. Following is a description of each category.

Category I, 2007 "Worst Case" Year Disturbance - Permanent Program Regulations Area - Included in this category are four spoil piles, open pit and box cut areas (where applicable), areas ahead of mining that have been stripped of topsoil, ramps, and miscellaneous disturbance areas in and around the open pit. Estimated costs to reclaim Category I lands come under the headings of:

a) Cast/blast highwall
b) Doze highwall material into the open pit
c) Doze first two (adjacent) spoils into the open pit
d) Doze back two spoils to blend with surrounding topography
e) Backfill and grade all ramps
f) Miscellaneous grading
g) Grade terraces
h) Grade drainages/downdrains
i) Load, haul, and place riprap
j) Haul and place suitable material
k) Haul and place topsoil
l) Revegetation



Category II, Permanent Program Regulations Area (Revegetated except for the mine support facilities disturbance areas) - Included in this category is the pre-2007 mining disturbance (area presently bonded). It is assumed that reclamation, including backfilling/grading, topsoil distribution, and revegetation, will be current from the edge of the AZ-0001D and AZ-0002A permit revegetated disturbance line to the edge of the fourth spoil pile in the Category I area. Estimated additional reclamation costs in this area would then be limited to remedial work required during a "worst case" bond release application review and is listed as Revegetation Maintenance Pre-2007 and in Attachment 24-4, Worksheets 24-4-1 through 24-4-4

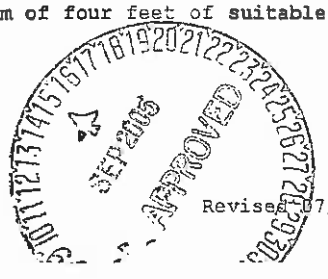
The areas surrounding the support facilities in Category II have been subdivided to define the areas which are permanent program revegetated areas and are being held for bond release. These reclaimed areas are classified as Category IIA areas (see Table 24-2-2 and Drawing No. 89800). The mine support facilities are in Category II, including roads,

ramps, ponds, facilities, etc., have not been included in Category IIA (as much as practicable) to reduce "double bonding" of these facilities. The bond cost for the mining support facilities under the Category IIA classification is calculated in Attachment 24-4 or 24-5.

The remaining areas in Category IIA are areas where PWCC has or will have the reclamation completed by the "worst case" year. These areas have not had permanent program reclamation liability release approved by the regulatory authorities; however, PWCC completed backfilling and grading, topsoil replacement, surface stabilization, and revegetation for these lands, and some of these lands have been revegetated since 1986. This bond estimate, therefore, assumes these lands will not require placement or grading of spoil to change the surface topography. The permanent program permit incorporates several periodic monitoring and reporting mechanisms to assure that PWCC complies with the requirements of the permanent program. These include the annual "Surface Stabilization Report" (1991 to present), the annual "Minesoil Reconstruction and Revegetation Activities Report" (1986 to 1998) for the Black Mesa and Kayenta Mines, the "Annual Reclamation Report" (1998 to present), and frequent inspections by OSMRE, the Navajo Nation, and the Hopi Tribe.

Since PWCC has, or will have, effectively completed the majority of required reclamation work for these lands prior to the "worst case" year, the "worst case" bond estimate for the Category II and IIA lands reflects the following assumptions:

1. Since implementation of the Surface Stabilization Plan (see Chapter 26), the backfilling and grading requirements are being achieved in accordance with the permanent program permit requirements. Typically, none of the permanent program lands will require regrading; however, to be conservative and provide a "worst case" liability estimate, this estimate assumes 50 percent of the area will require surface manipulation including grading to blend the surface area with surrounding topography and promote effective drainage, backfilling and grading surface cracks and potentially unstable features, grading and blending of drainage control structures, and grading of excessive erosion areas. The remaining 50 percent of Category IIA area is assumed to include flatter, stable, interior reclaimed lands which are suitable to comply with permanent program backfilling and grading requirements without further surface manipulation.
2. The 50 percent of the area requiring surface topography manipulation above will require new or repaired terraces and drainage channels. This estimate includes additional bond money to reconstruct or repair the Surface Stabilization structures as required within this area.
3. The Minesoil Reconstruction program monitors, samples, and reports on an annual basis the existence of four feet or more of suitable plant growth material on all permanent program lands. No additional money is required for topsoil haulage and spreading. Adequate topsoil on-site is available to redistribute during the miscellaneous grading phase described above to leave a minimum of four feet of suitable plant growth material within the dozer's grading distance.



4. This estimate assumes dozer-ripping of 50 percent of the Category II and IIA lands and complete reclamation/revegetation of this surface area. This is conservative; however, it assures adequate bo[illegible] money is available for surface soil mechanical manipulation, surface protection measures, and permanen[illegible] revegetation of the area.

Category III, Interim Program Regulations Area - Included in this category are lands disturbed and reclaimed during the period 12-17-77 through 7-6-90 for the Kayenta Mine and 12-17-77 through the present for the Black Mesa Mine. Due to the status of the permitting process and the regulatory requirements during this time, reclamation bonds were not required to be submitted for these lands.

Category IV, Area Disturbed Prior to 12-17-77 - Lands in this category were disturbed prior to OSMRE law regulating coal mining and, therefore, reclamation bonds were not required to be posted.

Category V, Lands Under Major Facility Areas - Permanent Program Regulations Area - This area includes the major permanent program facilities areas. The bond costs for these areas are calculated in Attachment 24-5.

Reclamation Cost Categories

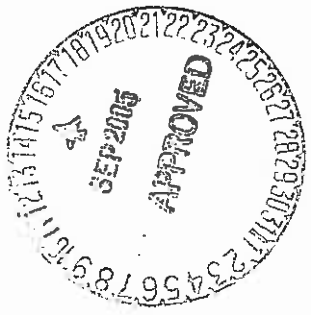
PWCC's experience in reclaiming mined land has shown, for the purpose of estimating bonding costs, reclamation activities can be grouped into the following categories:

Direct Costs

1. Backfilling and grading/surface stabilization
2. Suitable material and topsoil replacement
3. Revegetation
4. Exploration drilling
5. Mine support/facility reclamation

Indirect Costs

1. Mobilization and demobilization
2. Contingencies
3. Engineering redesign fee
4. Contractor profit and overhead
5. Reclamation management fee



The following assumptions are reflected in this reclamation bond estimate:

1. The reclamation bond is based on the cost of having a third-party contractor engaged by OSMRE complete the required reclamation work.
2. The reclamation bond is based on those conditions that define the point in the planned mining operation that presents the greatest estimated reclamation costs for that permit term. Calculating the bond in this manner assures the availability of adequate reclamation funds if, and regardless of when, a forfeiture might occur during the permit term.
3. The reclamation bond is based on OSMRE's third-party contractor adherence to the approved mining and reclamation plans, permit conditions, and performance standards.

Direct Reclamation Costs

Backfilling and Grading. The first major activity in the reclamation of mined lands is backfilling and grading of any open pits. Although this process is discussed in detail in the Backfilling and Grading Plan found in Chapter 21 and the Surface Stabilization Plan in Chapter 26, an unplanned cessation of mining will usually cause some deviation from the original plan. Early cessation would generally affect the projected postmining topographic configuration, location and configuration of postmining drainages, and the resulting volumetric calculations. In all cases, the bond reclamation calculations reflect completion of backfilling and grading to eliminate highwalls, establish a stable configuration, and reestablish effective drainage consistent with the approved permit.

The first step is the determination of volumes. Overburden/coal boreholes were located in the 2007 open p areas and used to determine average overburden depths for each pit. Depth values calculated from the boreholes were used in conjunction with range diagrams for each pit area to develop a representative range diagram for each pit. These representative range diagrams formed the basis for subsequent pit volume calculations. Graphical representations of the representative range diagrams are provided at the beginning of every set of applicable pit area worksheets (see Attachment 24-3). As shown on these diagrams, some pit areas employ alternating spoil and highwall benches for stripping.

Postmine slopes were then superimposed on the range diagrams. Regraded spoil slopes were established at a minimum slope of 10h:1v and a maximum slope of 4h:1v. Regraded highwall slopes would be reduced to a minimum slope of 5h:1v and a maximum slope of 3.5h:1v. Slopes were adjusted within these ranges using a digitizer to check areas in order to obtain a cut/fill balance for each pit area. A swell factor of 25 percent for highwall material was utilized based on studies discussed in Chapter 21. This produced a final topography that could not only be revegetated, but would also allow drainage to flow through and from pit areas without impounding water. It was also assumed that in all cases there would be four standing spoils behind the open pit. This is a very conservative estimate because, in most cases, reclamation grading is current to within two spoil piles. It was assumed that the two adjacent spoils would be dozed into the open pit and the two back (furthest from the pit) spoils would be graded into the adjacent troughs created by the spoil a blended into the surrounding topography (see the representative range diagrams in Attachment 24-3).

Highwall reduction would be accomplished by drilling and shooting the highwall (see Worksheet 24-3-2 for each active pit area) and then dozing the blasted material into the open pit. The first three rows of blastholes could be drilled with a larger diameter hole and blasted, achieving a cast of approximately 25 percent of the blasted material into the open pit. See Table 24-2-3 in Attachment 24-2 for a summary of highwall reduction and spoil grading volumes.

The premining and postmining topography maps were compared for material movement. Due to the fact that the topographic highs and lows will generally be located in the same area after mining as they were prior to mining, it is anticipated that tracked dozers rather than tractor scrapers would be effective in backfilling the final pits.

Portions of the J-19 and J-21 pits include box cut spoil grading areas. The timing and location of the other box pit spoil is such that other box cut spoil will be reclaimed by the end of 2007 and was not included as a liability in the "worst-case" year. In order to simplify the bonding calculations, box cut spoil areas were included in overall pit lengths when calculating pit backfill and grading volumes.

Ramp grading estimates are a part of this document. The number of ramps for each pit area (J-7, N-6, etc. in 2007 were estimated from the Mine Plan Map (Drawing No. 85210). Total ramp lengths were estimated using

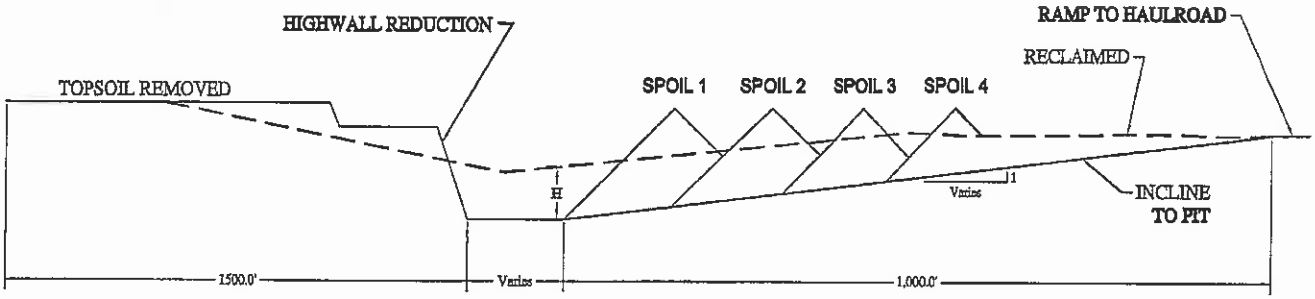
the average pit depths previously determined and ramp grades ranging from 9 to 12 percent. A standard ramp length of 1,000 feet from the open pit (within the 4 spoil pile limit) and width of 100 feet were used in the ramp backfilling volumetric calculations. Additional ramp grading requirements were based on remaining ramp lengths beyond the 1,000 foot limit. Please refer to Figure 24-1 and Worksheets 24-2-4 and 24-3-6 for ramp grading volumes and calculation details for each active pit area.

In addition to the area disturbed by highwall reduction, adjacent spoil piles, etc., there is some disturbance around the pit areas that cannot be calculated by a length times width calculation, (see Drawing No. 89800, Category I areas). It is for this reason a miscellaneous grading category has been included in the backfilling and grading calculations. This will cover additional disturbance at in the advance topsoil removal area, around the pit ends, truck dumped spoil areas, etc. An estimated grading time of one acre per shift has been assigned to this category. Please refer to Table 24-2-5 for a summary of miscellaneous grading areas and Worksheets 24-3-7 for corresponding grading calculations.

The Surface Stabilization Plan, as presented in Chapter 26, discusses in detail the measures to be taken to assure stable postmining landforms. Costs have been included in this bond estimate to complete surface stabilization activities. Drainage channels will be created in conjunction with backfilling and grading operations. The additional work required is for construction of terraces, downdrains, and riprap placement. Worksheets for each mining area (Attachment 24-3, Worksheets 24-3-8 through 24-3-10) present calculations for these activities. Table 24-2-6 in Attachment 24-2 summarizes requirements for the reclamation channels, downdrains, and terraces for each pit area.

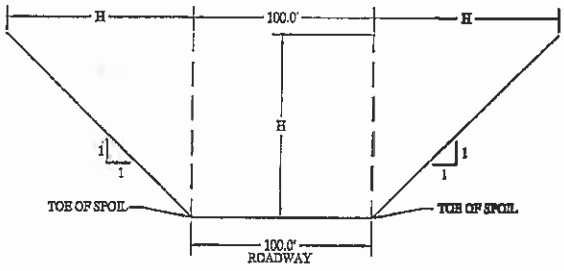
FIGURE 24-1
TYPICAL RAMP GRADING PLAN

(NOT TO SCALE)



RAMP INCLINE GRADING - TYPICAL PROFILE

(NOT TO SCALE)

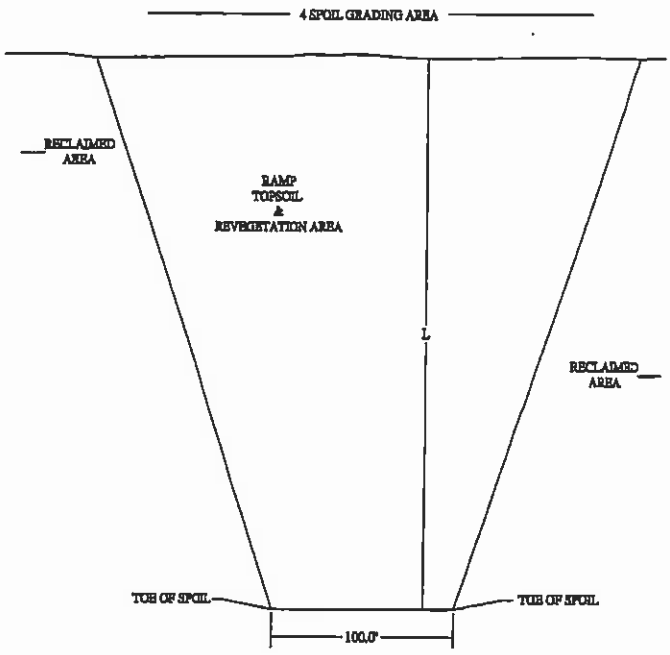


TYPICAL CROSS-SECTION

(NOT TO SCALE)

A : 100 H + H^2

H : SCALED HEIGHT FROM TYPICAL RANGE DIAGRAMS



TYPICAL PLAN VIEW IN RECLAIMED AREA

(NOT TO SCALE)

A : (100 + 3H) L

H : GRADING HEIGHT AT THE EDGE OF THE 4 SPOIL AREA

NOTE: ASSUME SPOIL IS GRADED TO MINIMUM 3:1 SLOPE

Revised 02/28/00

J21 24-3-1

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Suitable Material and Topsoil Replacement. The second major activity in the reclamation sequence is the replacement of suitable material and topsoil. Tractor scrapers would be used to recover, haul, and place both suitable material and topsoil. It is anticipated that in and around the mining disturbance areas, portions of the disturbed area may contain unsuitable plant growth material. Onsuitable material uncovered in the highwall reduction process which cannot be covered by grading or mixed, will be buried. The spoil sampling program as discussed here, in Chapter 8, Soils Resources and Overburden, and in Chapter 22, Minesoil Reconstruction, addresses this problem. It was assumed that suitable material within the topsoil stripping area ahead of each pit could be salvaged and spread to a depth of 2.4 feet on regraded areas. The 1.6 feet of topsoil would then be redistributed.

Areas for topsoil replacement include areas ahead of mining, pit areas, graded spoil areas, ramp areas, and all facility areas. Once the areas to be topsoiled were located on the Bonding Map, Drawing No. 89800, distances from topsoil stockpiles existing or projected to exist in 2007 were measured. Weighted average topsoil haul distances were then calculated for each pit area as shown on Table 24-2-7, Attachment 24-2. Except as noted, an average grade of 2.5 percent was assumed for topsoil hauls. It was assumed that each Permanent Program mining area would receive an average of 1.6 feet of topsoil and 2.4 feet of suitable material over the graded spoils, for a total of 48 inches of suitable plant growth material. The J-7 and N-6 areas were assumed to Initial Program areas and only will require 1.0 feet of topsoil. Topsoil and suitable material replacement calculations are provided by Worksheets 24-3-11 and 24-3-12.

A regraded spoil sampling program has been used at Kayenta Mine since 1986 to determine the topsoil redistribution thickness. The N-11, N-14, J-16, J-19 and J-21 pit area regraded spoil sampling data indicate 70 percent of all 1997/1998 sample sites consisted entirely of suitable material (PWCC, 1998a and PWCC, 1999a). An average topsoil redistribution depth of 1.6 feet was needed at Kayenta Mine in 1997 and 1998 based upon a total of 287 sample points. These values are based on approved site-specific soil and spoil suitability standards for Black Mesa and Kayenta Mines.

Suitable, near surface, and deep overburden is available throughout the leasehold as evidenced by a cursory overview of core data presented in Chapter 8, Chapter 22, and Volume 12, Appendix B of the PAP. Overburden data from the deep coreholes over the entire lease was analyzed to determine the quantity of suitable material in each pit area. The percentage of suitable overburden ranged from 32 percent in the J-7 and J-16 pits to 52 percent in the N-11 area. The suitable overburden percentage for the entire Black Mesa leasehold was 38 percent.

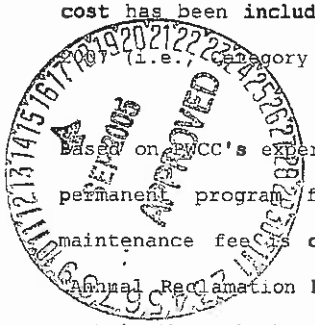
Premine overburden quality was compared to postmine spoil quality in the J-21 area. About 36 percent of the premine overburden strata had suitable chemical and physical characteristics. Fifty-eight percent of the final graded spoil sampled from 1986 through 1989 was determined to be suitable. Higher percentages of suitable material in the spoil suggest physical mixing and dilution of overburden has occurred during the

dragline spoiling and final grading operations. Similar partial dilution and mixing phenomenon is described by Dollhopf et. al., 1981.

The required redistribution depth of topsoil and/or suitable spoil for the Black Mesa leasehold will likely be similar to the 1.6 foot thickness determined for the 5 Kayenta Mine pit areas during 1997 and 1998. Based, however, on the 03/12/90 bond adjustment, the bond cost calculations for topsoil/suitable spoil redistribution is conservatively based upon the 4.0 foot replacement depth. It was determined, therefore, that all Permanent Program graded spoil areas would require the 1.6 feet of topsoil, plus an additional 2.4 feet of suitable plant growth material. The volume of material needed for these areas is shown on Table 24-2-7.

For areas assumed to already be revegetated (i.e., Category II and IIA), verification of four feet or more of suitable plant growth material is discussed in the annual "Minesoil Reconstruction and Revegetation Activities Report" (1986 to 1998) and the "Annual Reclamation Report" (1999 to present) for the Black Mesa and Kayenta Mines submitted to OSMRE.

Revegetation. After the topsoil has been replaced, the seedbed must be prepared prior to seeding. This is accomplished by ripping and discing the seedbed on the contour. Seeding is accomplished using a rangeland drill or broadcast seeder. It is assumed that 100 percent of the area would have to be mulched with hay or straw. Shrubs and trees are also planted in designated reclamation areas (Chapter 23). All costs, including fencing, are shown on Table 24-1-3, Attachment 24-1. It was assumed that all reclamation would be complete up to the fourth spoil pile (see Attachment 24-3, Worksheets 24-3-13 and 24-3-14; Attachment 24-4, Worksheets 24-4-4 and 24-4-7; and Attachment 24-5, Worksheets 24-5-6, 24-5-13, 24-5-18, 24-5-25, 24-5-31, 24-5-37, and 24-5-42). An incremental revegetation maintenance cost of 50 percent was also included to cover potential revegetation failure for seeded areas and consequent reseeding requirements. This revegetation maintenance cost has been included for all permanent program regulation lands disturbed and reclaimed from 1984 through 2007 (i.e., Category II and IIA lands).



Based on PWCC's experience, recordkeeping, monitoring, and reporting, there has been only a limited amount of permanent program final reclaimed lands requiring reseeding; therefore, the 50 percent revegetation maintenance fee is conservative. The "Annual Vegetation Monitoring Reports" (PWCC 1993 to 1999) and the "Annual Reclamation Report" (PWCC 2000 to present) for the Black Mesa and Kayenta Mines submitted to OSMRE contain the existing established perennial species seedling density. As an example, the data for the 1992 to 1994 years includes seedling density data from 16 reclaimed J-21 sites. Chapter 23 of the AZ-0001D permit states that greater than 0.75 seedling/ft^2 is an excellent stand and reseeding will be considered for stands with less than 0.5 seedlings/ft^2. In all 16 sites above, none were less than 0.5/ft^2 and most were greater than 1/ft^2. In 1998, seven reclaimed sites in the J-21 area were sampled for seedling density. The values ranged from 0.71 to 1.99 seedlings/ft^2 with six of the seven sites having greater than 0.75 seedlings/ ft^2.

In addition, the annual reclamation reports for the Black Mesa Complex have included various categories for revegetation since the 1992 reporting year. These include REV (newly seeded), RES (reseeded sites), and INS (newly seeded or reseeded sites which were also interseeded). The text, tables and maps reflect these categories.

Finally, various annual vegetation monitoring reports include cover data for the J-21 area for lands reclaimed from 1986 to the present indicating the percentage of cover at or approaching the cover density required for bond release. In particular, a significant portion of the J-21 reclaimed area was sampled in 1998 to provide a data set supporting a Phase 2 bond release request. The reclaimed area cover was sufficient to meet the cover success standard (1998 Annual Vegetation Monitoring Report, PWCC). The J-21 area is representative of current and future permanent program reclamation management practices. All of the above data and reports indicate that reseeding of 50 percent of the permanent program lands would be a conservative estimate.

Exploration Drilling. An exploration drilling program is generally conducted in advance of the mining areas, generally within the areas to be mined. The activities of this program within the permit area are regulated and inspected by the OSMRE. All exploration activities outside of the permit area are regulated and inspected by the Bureau of Land Management (BLM). The reclamation plans provided for exploration are bonded via prospecting bonds outside the permit area and reclamation bonds inside the permit area. Attachment 24-6 includes copies of the current exploration bond calculations. All other exploration/reclamation bonds have been released. Copies of the reclamation bonds are included in Chapter 3, Attachment 10.

Facility Reclamation. The facilities, buildings, structures, and miscellaneous support infrastructure (ie: roads, powerlines, conveyors, etc.) that would have to be demolished, disposed of, and associated areas reclaimed if mining operations were to cease in the year 2007 are identified in Attachment 24-5. The following and Chapter 6 discuss reclamation of these structures and associated disturbance areas. Worksheets 24-5-1 through 24-5-16 summarize relevant demolition volumes, reclamation areas and activities, and related costs.

Structure Demolition. This bond reclamation cost estimate assumes that all PWCC controlled structures within the Black Mesa Complex, excluding the Black Mesa Pipeline Company's facilities but including all Black Mesa Mine, Kayenta Mine, and Joint Facilities, would have to be demolished and the resulting demolition debris disposed of. It also assumes that no salvage value be attached to any of the structures. In order to facilitate determination of separate bond breakouts for the Black Mesa and Kayenta Mines, it was assumed that 40 percent of the Joint Facilities are associated with the Black Mesa Mine and 60 percent with the Kayenta Mine.

Means Heavy Construction Cost Data - 2005, was used to estimate demolition and disposal (haul up to 5 miles) costs. It is anticipated the N-6 and J-19 open pits could be approved as locations for all concrete a steel disposal. Volume determinations were made from existing maps and/or field measured. The cost per cub foot includes disposal. Most costs, except where noted, were based on a mixture of construction materials. Demolition debris would be hauled to and placed in the backfill of the nearest open mine pit area (i.e. N-6 or J-19 open pit). All information regarding structure volumes and costs can be found on Worksheets 24-5-1. Expenses were included in both the Black Mesa and Kayenta Mine's disposal costs to include the appropriate design and permitting fees for the N-6 and J-19 disposal areas. Existing facilities will support the contractor's reclamation activities and will be reclaimed as near to the end of the project as possible. In the last year, two portable office trailers and a parts trailer would be mobilized for contractor use.

Facility Areas. After facilities and structures are demolished and the associated demolition debris is removed and disposed of, associated disturbance areas are reclaimed. The concrete footings and foundations in the top three feet will also be hauled to the nearest open pit disposal area. The top one-foot of gravel/scoria surfacing on the parking/storage areas will be buried in a trench. The trench will be excavated adjacent to the area in suitable plant growth material in order to accept the top one-foot of the surfacing which will be pushed into the trench. The material originally excavated from the trench will then be used to cover the surfacing material (gravel) that was pushed in the trench with four foot of suitable material. Once this is accomplished, the entire parking area will be ripped to a depth of three feet. On foot of suitable growth material from the surrounding area or topsoil stockpiles will then be hauled scraper to the ripped parking area. The areas, including the borrow areas, will then be revegetated. Please refer to Attachment 24-5 and Worksheets 24-5-1 through 24-5-6 for volumes and hours.

Miscellaneous Utilities. Reclamation of utilities, including sewer lines, phone lines, and water lines is assumed to be included in the powerline, land under facilities, roads, and conveyor reclamation calculations. All underground utilities would either be removed or plugged four feet below the final grade and overlying areas reclaimed in conjunction with adjacent facilities areas.

Conveyor Demolition. The cost associated with demolition of the conveyor system is shown on Worksheet 24-5-8. The demolition cost per cubic foot and disposal cost per cubic yard (assumes 5 mile haul) are based on Means Heavy Construction Cost Data for demolition of steel structures. Conveyor lengths were taken from Drawing No. 85210. Dimensions were field measured. It was assumed that all conveyor demolition debris would be hauled to the nearest open pit disposal area for placement in the backfill. The reclamation of the land underneath the conveyor is included in the reclamation of the mine's facilities area.

Powerlines. Powerline demolition was based on the appropriate crew as published in Means. Powerline length were taken from Drawing No. 85210 and field surveys where needed. An estimate of daily production was ma to arrive at the total cost for removal. Please refer to Worksheet 24-5-9 for costs.

Scoria Pits. It was assumed that a number of scoria pits would exist as disturbed areas within the permit area in 2007. Reclamation of these areas would consist of ripping the pit areas, followed by grading, topsoiling, and seeding. Please refer to Worksheets 24-5-10 through 24-5-13 for scoria pit reclamation calculations and Table 24-2-9 in Attachment 24-2 for disturbance areas.

Landfarm. Currently, PWCC maintains one landfarm areas (i.e., J-16 landfarm) for remediation of minor quantities of petroleum-contaminated soils. Reclamation of the landfarm areas would involve removal of the landfarmed material, with haulage of this material to the nearest pit backfill area for placement in the fill. The limited landfarm areas would then be ripped, graded, topsoiled, and seeded. Please refer to Worksheets 24-5-14 through 24-5-18 for the landfarm reclamation calculations.

Airport. The existing J-3 airport would be reclaimed by digging a trench to accept the runway material; removing the 4 inches of asphalt surfacing, placing it in the trench, and covering it with the excavated material; ripping the subgrade; followed by topsoiling, and revegetation. The reclamation of the land underneath the airport is included in the reclamation of the Joint facilities area. Please refer to Worksheets 24-5-19 through 24-5-20 for the airport reclamation calculations.

Road Reclamation. The three types of roads requiring reclamation within the mine site are primary roads that are to be totally reclaimed, ancillary roads that are to be totally reclaimed, and permanent primary roads that are presently primary haulage roads that will be left for the local residents, and must be narrowed. The three different road categories are differentiated on the Bonding Map (Drawing No. 89800) by of distinct symbols. There are approximately 69 miles of primary roads that will be totally reclaimed, 104 miles of ancillary roads that will be totally reclaimed, and 27 miles of primary haulage roads that will be narrowed as permanent roads for public use.

Permanent Roads. There are approximately 27 miles of primary roads that are currently (or in the future) used by local residents as bus routes and for general access to other areas. These roads will continue to be used by local residents and school districts as primary access routes after mining is completed. These roads will be narrowed to 30 feet to minimize future maintenance requirements consistent with anticipated continued uses. Reclamation will involve dozing approximately one foot of surface material off the edge(s) of the road into ditches or off the road to narrow the road, ripping and grading of the dozed area, and topsoil replacement and revegetation. Refer to Worksheets 24-5-21 through 24-5-25 for permanent road reclamation calculations. The Bonding Map (Drawing No. 89800) shows the location of these roads.

Primary Roads. There are approximately 69 miles of primary roads that will need to be reclaimed. The reclamation procedures will be much the same as permanent roads except that the entire road surface will be reclaimed. As with the permanent roads, the surfacing material will be pushed into road ditches and buried

as part of the cut/fill grading. Refer to Worksheets 24-5-26 through 24-5-31 for primary road reclamation calculations and the Bonding Map (Drawing No. 89800) for road locations.

Ancillary Roads. In 2007, there will be approximately 104 miles of ancillary roads that PWCC will be responsible for reclaiming. One foot of surface material will be pushed into ditches or off the road, the subgrade will be ripped, and the cut/fills will be graded to cover the surface material. The culverts and embankments will be removed, topsoil respread, and the area revegetated. Numerous roads fall into the ancillary road category, from jeep trails to surfaced roads. The number of uses vary greatly as well. PWCC has identified the roads which are used to support mining activities on the Bonding Map (Drawing No. 89800). Refer to Worksheets 24-5-32 to 24-5-37 for ancillary road reclamation calculations. Other roads that show up on this drawing, aerial photos, or USGS topographic maps were constructed over several years. Most were constructed prior to December, 1977. A majority of these roads were exploration roads that have been reclaimed. All exploration roads are required to be bonded and the reclamation inspected by the OSMRE (inside the permit area) and BLM (outside the permit area). There are numerous other roads either constructed prior to 1977 or even after 1977 that are utilized by local people (i.e., non-mining related roads). These consist of access to home sites, wood gathering areas, ceremonial and cultural resource areas, corrals, grazing areas, water troughs, etc. PWCC is not responsible for reclamation of these roads and these roads will remain to support existing local uses.

Water Storage and Sedimentation Ponds. Most of the water storage and sedimentation ponds will be totally reclaimed while a few ponds will need to be cleaned out, but will remain in place as permanent ponds. Locations for all ponds are shown on Drawing 85405. Sediment deposition was based on annual estimates provided in Chapter 6. Embankment volumes were taken from existing, proposed, and typical designs as shown in Chapter 6. Embankment material and sediment accumulations in the ponds would be dozed into the pond basins or surrounding areas to reestablish effective drainage. Generally, all ponds would be drained prior to reclamation and be allowed to dry-out to facilitate reclamation activities. Any wet sediments would be cleaned out with a dragline while dry sediments would be cleaned out with a dozer. Sediments contained in incised ponds or the incised portions of most of the ponds would not need to be removed to reestablish effective drainage. It is also assumed that sediments meeting topsoil suitability standards could be used to topsoil pond disturbance areas. Please refer to Worksheets 24-5-38 through 24-5-42 in Attachment 24-5 for pond reclamation calculations. Table 24-2-[illegible] in Attachment 24-2 lists all ponds and summarizes the work to be performed at each pond.

Environmental Monitoring Sites. Approximately 16 environmental monitoring sites will exist off-permit and 95 monitoring water wells will exist within the permit area in 2007. Six of the off-permit environmental monitoring sites are conservatively assumed to have concrete structures requiring demolition. Following concrete demolition, both these sites and the remaining 10 off-permit sites will be reclaimed by grading and seeding the site disturbance areas. Well abandonment procedures will involve: 1) Cutting the well casing off

a foot below ground level or even with the ground surface; 2) Filling the well bore from the bottom to 20 feet below ground surface with high solids bentonite cement or cement using a tremie line to assure any bore water is displaced; 3) Grouting the top 20 feet of the well bore with cement; 4) Removing all locking well covers and protective fences; and 5) Scarifying and seeding the ground surface in the immediate vicinity of the well. See Attachment 24-5, Worksheets 24-5-43 through 24-5-45 for the estimated costs to reclaim environmental monitoring sites and monitoring wells.

N-11 Coal Handling Facility.. The additional cost to backfill and grade the N-11 Coal Handling Facility is included on Worksheets 24-5-46 and 24-5-47. All other costs associated with reclamation of these facilities are included in the area for the Kayenta Facilities worksheets.

Dragline and Shovel Removal. The additional cost to disassemble and remove the draglines and shovels is included on Worksheet 24-5-50. The cost of these activities was estimated from PWCC experience. This cost is conservative and it will be reevaluated during bonding calculations updates. Currently, used draglines and shovels have a positive salvage value.

Fuel Tax. The additional cost to all equipment operation at the Black Mesa Mine area based on the Navajo fuel tax. Gallons of fuel consumed per hour of operation were calculated from the Cost Reference Guide and then multiplied by the hours of operation for each piece of equipment reported in Table 24-1-5 Direct Cost by Equipment for the Black Mesa Mine. Kayenta Mine has a waiver with the NGS Power Plant for Navajo diesel fuel tax and Navajo Sales Tax.

Indirect Reclamation Costs

The following summarizes the costing approach for the indirect costs associated with reclamation of the Black Mesa Mining Complex.

Mobilization and Demobilization. Once areas and volumes for the various required reclamation activities were determined, the number of shifts, hours per shift, equipment types, operator/operating efficiencies, support equipment, and overall reclamation time span, all of which ultimately affect mobilization and demobilization, had to be determined. The following discussion outlines the considerations utilized in determining equipment fleet requirements.

Production Shifts. A maximum of two shifts per day was used for this estimate. Using two shifts per day, 5 days per week, 250 days per year, would allow for preventative maintenance and minor equipment repair to occur on 3rd shift, if needed. Shift scheduling was based on eight hours per shift. Actual production time during an eight-hour shift only amounts to approximately seven hours due to lunch, startup, and shutdown. Actual working time is estimated at 50 minutes for each 60 minute scheduled hour. All estimates of production

time required to complete a task were, therefore increased by a factor of 1.371 (8/7 x 60/50) to account for the additional equipment time and labor associated with this shift factor.

Equipment Type. The types of equipment selected were based on similar equipment types presently operating at the mine and typical contractor equipment that would be utilized for a project of this magnitude. Whenever possible, Caterpillar equipment was used for reclamation due to widely published information regarding costs and performance. All equipment costs were taken from the Cost Reference Guide (CRG) for Construction Equipment, except as noted. Depreciation costs were adjusted based on operating the equipment two shifts per day. Based on CRG's Appendix 23, Section 8.1, CFC and overhead can be normally accrued during the first shift only. Because the equipment is scheduled two shifts, the CRG costs were reduced by 50 percent. In addition, based on CRG's Appendix 23, Section 8.2, depreciation costs were reduced by 75 percent (i.e., average of 100 and 50 percent). Please see Table 24-1-1 in Attachment 24-1 for a list of all cost factors. Local cost for diesel fuel is approximately $1.43 per gallon; therefore, fuel costs were adjusted to reflect prevailing local costs. Equipment performance was based on the Caterpillar Handbook - Edition No. 31, Means, or as otherwise noted in the worksheets. Operator performance factors were based on generally published and accepted criteria (see individual worksheets).

Operator wages were all based on the Davis-Bacon wage rates for government contracts in Northern Arizona as provided by OSMRE. See Table 24-1-2 in Attachment 24-1 for labor rates.

Reclamation Timeframe. A reasonable timeframe for a job of this magnitude is estimated to be approximately three years from start to finish. With this timeframe in mind, and the overall time per unit of equipment known, it became a matter of sizing the fleet so no one piece of equipment worked over 12,000 hours (3 years x 250 days/year x 2 shifts x 8 hrs/shift). The primary production machines and the support equipment needed for the fleet size and timeframe were then estimated. Mechanic and welder labor rates are included in the field repair labor hourly costs for each piece of equipment utilized. Equipment requirements are summarized by Worksheet 24-5-48.

Mobilization and Demobilization Costs. Mobilization and demobilization costs are based on mobilizing 39 major pieces of off-highway equipment and 29 smaller pieces of on-highway vehicles or smaller support equipment. The guidelines set forth in OSMRE's Reclamation Handbook place a value of mobilization and demobilization at one percent to five percent of the direct costs. PWCC used 1.7 percent, or $2,425,053. This amounts to approximately $34,000 per unit for the major equipment and $2,500 per unit for the small equipment, plus approximately $1,026,553 for incidental mobilization and demobilization costs which might be incurred by the contractor, including hook-up, set-up, disconnect and dismantling of the contractor's job site facilities and equipment. This is adequate money to cover a typical Means crew at a daily rate of approximately $20,531 per day for 25 days at the start-up and 25 days at the shut-down of the project. Based on industry standards, the $1,398,500 will provide enough money for mobilizing/demobilizing of a contractor

an average distance of 560 to 600 miles. In addition, due to the size of the mine site, an interior mobilization time for each piece of equipment to travel from one job to the next was estimated (see Attachment 24-5, Worksheet 24-5-49).

Contingencies. Based on Table 4 in OSMRE's 1987 Handbook, a contingency factor of 1.5 percent of the direct cost was retrieved; however, OSM wants PWCC to use 3.0 percent to provide for unforeseen reclamation circumstances or natural disasters/weather delays.

Engineering Redesign Fee. The reclamation plan as submitted is based on a planned life-of-mine operation. If mining should cease before the planned date, some projects may need to be re-engineered or field engineered. To account for these costs, Graph 1, OSMRE 1987 Handbook was used to estimate these fees. This was estimated at 1.9 percent of the direct costs. OSM wants PWCC to use 2.5 percent.

Contractor's Profit and Overhead. Profit and overhead for the contractor was estimated using Graph 1, OSMRE April, 2000 Handbook. This was estimated at 10 percent of the direct costs. OSM wants PWCC to use 15 percent. Contractor's overhead includes office maintenance, cleaning, utilities, security, and any other incidental overhead expenses to manage the project.

Reclamation Management Fee. This fee represents the cost for management of the entire project, including project inspection and supervision. Usually this is performed by a firm specializing in reclamation oversight activities. This was estimated per Graph 3, OSMRE 1987 Handbook at 1.8 percent of the direct costs. OSM wants PWCC to use 2.0 percent.

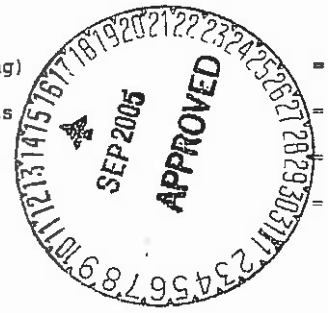
Inflation. Direct costs are based on the "Cost Reference Guide for Construction Equipment" Section 9, *Tractor and Earthmoving Equipment*, updated through First quarter of 2005 and the Davis-Bacon Labor Rates published in March, 2005 (General Decision AZ20030010). In addition, PWCC has evaluated and reflected the effect of inflation on direct reclamation costs for the "worst case" year of the five-year term (i.e., 2007) and has included a 4.2 percent inflation factor in the bond calculations. The inflation factor is based on the July, 2005 Engineering News Record's Construction Cost Index. It is assumed that the inflation factor will be reviewed and adjusted, as appropriate, during the mid-term review or during the next bond calculation update.

COST SUMMARY

DIRECT COSTS

BACKFILLING AND GRADING (Cat. I)

Highwall Reduction (Blasting)	=	$8,921,595
Backfill and Grade Open Pits	=	$17,654,553
Ramp Grading	=	$5,808,419
General Grading	=	$5,981,409



Surface Stabilization	=	$557,311
Total Backfilling & Grading	=	$38,923,287

SUITABLE MATERIAL AND TOPSOIL REPLACEMENT - PIT AREAS (Cat. I)

Suitable Material Replacement	=	$4,482,227
Topsoil Replacement	=	$13,493,148
Total Suitable Material/Topsoil Replacement	=	$17,975,376

REVEGETATION

Revegetation - Pit Areas(Cat. I)	=	$13,978,969
Revegetation Maint. Pre-2007 Dist.(Cat. II/IIA)	=	$5,409,401
Total Revegetation	=	$19,388,370

MAINTENANCE ACTIVITIES (Cat II and IIA)

Grading at 50%	=	$8,995,109
Surface Stabilization at 50%	=	$7,236
Surface Ripping at 50%	=	$1,271,775
Total Maintenance Activities	=	$10,274,120

FACILITIES

Structure Demolition	=	$4,050,528
Reclaim Facilities Area	=	$8,142,603
Conveyor	=	$4,307,795
Powerlines	=	$369,442
Scoria Pits	=	$397,526
Landfarm Reclamation	=	$34,342
J-3 Airport	=	$14,506
Permanent Roads	=	$2,193,044
Primary Roads	=	$11,791,978
Ancillary Roads	=	$6,930,617
Water and Sedimentation Ponds	=	$4,460,030
Environmental Monitoring Sites	=	$115,646
Monitoring Wells	=	$95,000
N-11 Coal Handling Facilities	=	$769,371
Dragline and Shovel Removal	=	$1,100,000

Total Facilities	=	$44,772,428
MISCELLANEOUS ITEMS		
Exploration Activities (Attachment 24-6)	=	$284,100
Interior Mobilization	=	$291,929
Support Equipment	=	$10,373,787
Black Mesa Fuel Tax ($0.18 per gal.)	=	$366,771
Total Miscellaneous	=	$11,316,587
SUBTOTAL DIRECT COSTS PLUS FUEL TAX	=	$142,650,168
INDIRECT COSTS		
Mobilization and Demobilization (1.7% of Direct Costs)	=	$2,425,053
Contingencies (3.0% of Direct Costs)	=	$4,279,505
Engineering Redesign Fee (2.5% of Direct Costs)	=	$3,566,254
Contractor Profit and Overhead (15.0% of Direct Costs)	=	$21,397,525
Reclamation Management Fee (2.0% of Direct Costs)	=	$2,853,003
SUBTOTAL INDIRECT COSTS	=	$34,521,340
To project the 2006 reclamation liability cost an average annual inflation rate of 4.2% was assumed. Year 2006 Inflation	=	$5,991,307
Total Indirect Costs plus Inflation	=	$40,512,647
Total Direct and Indirect Cost with 2006 Inflation	=	$183,162,815
AZ Trasaction Provilege Tax (3.965%)	=	$7,262,406
Black Mesa Mine (only) - Navajo Sales Tax (3.00%)	=	$1,018,558
Previously Approved Exploration Bond	=	$1,012,499
TOTAL RECLAMATION LIABILITY	=	$192,456,228

TOTAL RECLAMATION LIABILITY BREAKDOWN BY MINE

	COMBINED	KAYENTA	BLACK MES
SUBTOTAL DIRECT COSTS PLUS FUEL TAX	= $142,650,168	$116,207,851	$26,442,317
INDIRECT COSTS			
Mobilization and Demobilization (1.7% of Direct Costs)	= $2,425,053	$1,975,533	$449,519
Contingencies (3.0% of Direct Costs)	= $4,279,505	$3,486,236	$793,270
Engineering Redesign Fee (2.5% of Direct Costs)	= $3,566,254	$2,905,196	$661,058
Contractor Profit and Overhead (15.0% of Direct Costs)	= $21,397,525	$17,431,178	$3,966,348
Reclamation Management Fee (2.0% of Direct Costs)	= $2,853,003	$2,324,157	$528,846
SUBTOTAL INDIRECT COSTS	= $34,521,340	$28,122,300	$6,399,041
To project the 2006 reclamation liability cost an average annual inflation rate of 4.2% was assumed. Year 2006 Inflation	= $5,991,307	$4,880,730	$1,110,577
Total Indirect Costs plus Inflation	= $40,512,647	$33,003,030	$7,509,618
Total Direct and Indirect Cost with 2006 Inflation	= $183,162,815	$149,210,881	$33,951,935
AZ Trasaction Provilege Tax (3.965%)	= $7,262,406	$5,916,211	$1,346,194
Black Mesa Mine (only) - Navajo Sales Tax (3.00%)	= $1,018,558	Exempt	$1,018,558
Previously Approved Exploration Bonds:			
J-21 Phase 2 Exploration		= $457,000	
J-23 Phase 3 Exploration			= $359,970
N-6/ N-11 Phase 1 Exploration		= $62,712	
N-9 Phase 1 Exploration		= $10,229	
N-10 Phase 1 Exploration			= $31,587
N-9 Phase 2 Exploration		= $90,951	
Total Exploration	= $1,012,449	= $620,892	= $391,557
TOTAL RECLAMATION LIABILITY	= $192,456,228	$155,747,984	$36,708,244

SEP 2006 APPROVED

		COMBINED	KAYENTA	BLACK MESA
CURRENT BOND POSTED	=		$131,192,000	$47,862,000
ADDITIONAL BOND REQUIRED	=		$24,555,984	NONE
PROPOSED BOND AMOUNT	=		$25,000,000	NONE
RESIDUAL BOND AMOUNT Available to PWCC	=		$444,016	$11,153,756

Bonding Summary

The reclamation bond will be incrementally reviewed for inflation and adjusted in December, 2006. This document and supporting maps demonstrate that the entire permanent program regulations permit area could be reclaimed for $192,456,228. In addition, this bond estimate includes enough money to reclaim both the Black Mesa and Kayenta Mines, even though the current AZ-0001D permit only requires bonding for the Kayenta Mine while the Black Mesa Mine Permanent Program permit is pending. Currently, the Kayenta Mine has $131,192,000 bond submitted to OSMRE and the Black Mesa Mine has an estimated $47,862,000 coal lease bond posted for a total bond of $179,054,000. With approval of PWCC's July, 2005 revised reclamation liability estimate, PWCC will require an additional bond of $24,555,984. This additional bond is adequate until December, 2006. An inflation adjustment will be reviewed and posted annually, as required in 2007, and thereafter, during the five-year permit term.

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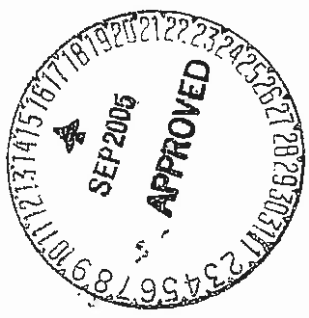

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ATTACHMENT 24-1

COST INPUT AND SUMMARY TABLES

- Major Equipment Costs
- Davis-Bacon Labor Rates
- Revegetation Costs
- Direct Costs by Mine Area
- Direct Costs by Equipment Type
- Direct Costs by Project
- Worksheets Master Summary Table
- Fuel Tax Summary Table

Tal -1-1
MAJOR EQUIPMENT COSTS
Black Mesa and Kayenta Mines

Equipment	Econ Hours	Hourly Ownership & Overhaul Expenses (Adjusted for Double Shift) $ Depr	$ CFC	O'Head	Overhaul $ Labor	Overhaul $ Parts	Field Repair & Fuel Expenses $ Labor	$ Parts	$ Fuel (2)	$ Lube	$ Tires	$ GEC	Total Operating Cost/hr	Total Hourly Cost
637E P-P Scraper	17,000	30.60	10.38	14.58	10.47	22.79	15.71	22.96	39.90	11.24	5.38	0.92	$96.11	$184.93
D11R Dozer	15,350	41.45	8.01	11.89	7.16	41.22	8.38	40.15	42.55	14.46	0.00	6.69	$112.23	$221.95
D10R Dozer	15,350	25.68	4.96	**7.16**	**7.16**	25.53	8.38	24.87	28.53	**9.19**	**0.00**	4.14	$75.11	$145.60
D7R Dozer	12,120	11.40	2.04	2.76	3.75	8.48	4.60	8.21	12.83	3.39	0.00	1.31	$30.37	$58.80
16H Grader	15,850	13.82	**2.83**	**4.77**	**3.14**	8.57	2.62	**8.31**	13.04	4.29	5.29	**0.69**	$34.24	$67.**36**
992G Loader	12,500	50.69	8.89	10.23	4.36	14.26	5.32	15.73	36.61	12.75	22.57	2.14	$95.12	$183.55
988F Series II Loader	12,500	20.06	3.69	3.01	4.36	**6.13**	5.32	6.76	19.68	5.76	9.70	0.89	$48.11	$85.34
Truck Tractor 6x4 76,000 lbs	9,300	6.38	0.56	0.95	2.56	2.24	3.75	2.51	14.01	2.35	2.08	0.00	$24.70	$37.37
DrilTech D55SP	12,800	36.74	6.45	6.16	14.22	21.52	**27**.21	37.**59**	32.91	**10.23**	0.00	3.76	$111.70	$196.78
769D Dump Truck	15,500	18.38	2.39	4.44	8.73	7.80	6.90	4.77	13.93	5.61	7.37	0.00	$38.58	$80.34
Water Truck 14,000 gal	**11**,500	25.91	**3.29**	**4.59**	**7.42**	6.94	17.**89**	13.40	**26.81**	7.08	11.34	**0.00**	$76.52	$124.67
Service Truck 4x2 30,000 lbs	10,350	2.91	0.29	0.44	0.91	1.08	1.52	1.29	5.89	0.97	0.85	0.00	$10.52	$16.09
Light Duty Diesel Crew **4x4 3/4 ton**	7,000	2.30	0.14	0.22	0.47	0.62	0.59	**0.60**	2.23	**0.40**	0.46	**0.00**	$4.28	$8.03
Welding/Supply Truck 4x2 30,000	10,350	2.91	0.29	0.44	0.91	1.08	1.52	1.29	5.89	0.97	0.85	0.00	$10.52	$16.09
Equipment Trailer 4 axle, 50T (folding gooseneck)	**8,800**	2.83	0.28	0.39	1.05	1.25	1.31	**1.58**	0.00	**0.37**	2.44	0.00	$5.70	$11.49
LS-208H Linkbelt (dragline)	15,000	13.60	2.81	2.84	13.97	1.77	15.97	11.37	10.23	4.23	0.00	0.89	$43.69	$78.67
Parts Trailer 8x32 Tandem Cargo **42** CWT	13,500	0.29	0.03	**0.06**	0.10	**0.10**	0.26	**0.18**	0.00	**0.04**	**0.04**	**0.00**	$0.52	$1.09
Office Trailer 8x32 48 CWT	13,500	0.44	0.05	0.09	0.14	0.15	0.33	0.28	0.00	0.07	0.07	0.00	$0.75	$1.62
Diesel Floodlighting **6** Lights (30 ft)	4,400	1.59	**0.14**	**0**.14	0.72	0.79	0.80	0.75	0.57	**0.23**	**0.00**	**0.00**	$2.35	$5.73
3 Shank Ripper D11, 850 hp	8,200	7.27	0.74	1.13	1.05	3.15	1.92	3.18	0.00	0.82	0.00	2.65	$8.57	$21.90
1 Shank Ripper D11, 850 hp	6,000	8.01	0.68	0.98	**1**.57	4.**18**	1.92	3.76	0.00	**0.72**	0.00	**3.13**	$9.53	$24.95
3 Shank Ripper D7, 230 hp	8,200	1.88	0.21	0.32	0.42	0.90	0.70	1.12	0.00	0.26	0.00	0.90	$2.98	$6.70
2 cy Bucket heavy	3,750	0.91	0.06	0.08	0.87	0.53	0.79	0.27	0.00	0.06	0.00	0.02	$1.14	$3.59

Notes:

1. Cost Information from Cost Reference Guide, 1Q2005.
2. PWCC's delivered average fuel cost (at Kayenta) between February, 2004-February, 2005, including applicable taxes and freight

Adjustments:

Double Shift Depreciation Multiplier	75%
Double Shift CFC and Overhead Multiplier	50%
Local Fuel Cost (per gallon)	**$1.43**

SEP 2005
APPROVED

File: 2005 Labor, Equipment, Reveg Rates.xls

Table 24-1-2
DAVIS BACON LABOR RATES
Black Mesa and Kayenta Mines

Type	Group	Hourly (1) Base Rate	Hourly Fringe Benefits	Total Hourly Rate
Laborers				
- General	1	$10.37	$2.77	$13.14
- Pipe Layer	4	$15.15	$2.77	$17.92
Power Equipment Operators (2)				
	1	$16.84	$6.48	$23.32
	2	$20.11	$6.48	$26.59
	3	$21.19	$6.48	$27.67
	4	$22.22	$6.48	$28.70
Truck Drivers (3)				
	1	$12.26	$4.97	$17.23
	2	$15.99	$4.97	$20.96
	3	$16.33	$4.97	$21.30
	4	$16.88	$4.97	$21.85
	5	$17.09	$4.97	$22.06
	6	$17.60	$4.97	$22.57
	7	$18.97	$4.97	$23.94

Notes:

1. Reference: Davis Bacon rates for highway and heavy construction projects in Apache and Navajo Counties, Arizona. Last modified Sept. 03,2004(heavy) and March. 1,2005(highway) . (General Decision No.s AZ20030003, AZ20030010).
2. Power Equipment Operators
   Group 1 - Equipment such as: winch truck, self-propelled compactor and tractor smaller than a D-5.
   Group 2 - Equipment such as: screening plant operators, backhoe/loader, drilling equipment and small loaders (0-6 yd^3 capacity).
   Group 3 - Equipment such as: cranes (15-100 tons), motor graders, loaders (6-10 yd^3 capacity), universal equipment (0-10 yd^3 capacity) including backhoes, clamshell and draglines.
   Group 4 - Equipment such as: cranes (100+ tons), universal equipment including backhoes, clamshell and draglines, and holland type loaders.
3. Truck Drivers
   Group 1 - Trucks such as: pickups, station wagons, Vacuum pupmp truck, etc.
   Group 2 - Trucks such as: 2 or 3 axle Dump or Flattrack, Water Trucks under 2500 gal. Boom "A" frame, Ginpole Winch and similar.
   Group 3 - Field equipment servicemen and trucks such as: 4 axel Dump/Flatrack, Fuel, Redi-Mix under 10.5 cu. Yd,water over 2500 gal. but less than 4,000 gal. and similar.
   Group 4 - Trucks such as: 5 axle Dump or Flattrack, Water Trucks over 4000 gal., Redi-Mix 10.5 to 14 cu. yd. and similar.
   Group 5 - Trucks such as: 6 axle Dump or Flattrack, Rock truck less than 16 cu yd and similar.
   Group 6 - Trucks such as: 7 or 8 axle Dump or Flattrack, Redi-Mix 14 cu yd or over and similar.
   Group 7 - Trucks such as: Off-highway equipment such as Rock Trucks 16 cu yd to 25 cu yd and similar.

Table 24-1-3
REVEGETATION COSTS
Black Mesa and Kayenta Mines

Spoil Suitability Sampling/Evaluation			
Sampling and Analysis (ac)	$95.00		
Seedbed Preparation			
Disking (ac)	$45.00		
Deep ripping (ac)	$72.00		
Seeding			
Seed costs (ac)	$149.00		
Seeding application cost (ac)	$55.00		
Estimated seed costs per acre based on 2001 prices.			
Mulching/Crimping			
Mulch Material (ac)		$330.00	
Application w/ tub grinder or Haybuster/Crimping (ac)		$75.00	
Fencing			
$3.56/linear foot installed with an average of 29.5 feet of fence per acre = (ac)			$105.00
47" woven wire with one top strand of barbed wire, mixed steel and treated wooden fence posts:			
47" woven wire with one top strand of barbed wire, mixed steel and treated wooden fence posts:			$926.00
Shrub, Tree and Cultural Species Planting			
Planting of seedlings for wildlife/cultural enhancement (ac)			$315.00
The actual cost per acre of a planting area will be higher.			
The above cost represents costs averaged over entire reclaimed area.			
Reseeding Cost			
Estimated 15-20% of acres require reseeding; however, based on "worst case" assumption, 50% of area was assumed reseeding. Reseeding would include (per acre):			
Seedbed Preparation (disking only)			$45.00
Seeding			$204.00
Mulching/Crimping			$405.00
Shrub, Tree and Cultural Species Replanting at 50%			$158.00
Reseeding Cost Subtotal			$812.00

ATTACHMENT 24-1

SUMMARY TABLES

- Direct Costs by Mine Area
- Direct Costs by Equipment Type
- Direct Costs by Project
- Worksheets Master Summary Table
- Fuel Tax Summary Table

BLACK MESA MINE
Direct Costs by Mine Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-4-01	J-1/N-6	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$26.59	0	acres	$248.54	$0	N/A
24-4-02	J-1/N-6	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0	$26.59	0	acres	$270.45	$0	N/A
24-4-03	J-1/N-6	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
				J-1 Subtotal		0					$0	
24-3-02	J-7	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$186.78	317	-	-	-	-	$232,424	$232,424
24-3-03	J-7	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	500	$27.67	788,900	cy	$249.62	$124,934	$0.16
24-3-04	J-7	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	747	$27.67	663,140	cy	$249.62	$186,425	$0.22
24-3-05	J-7	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	74	$27.67	177,090	cy	$249.62	$18,470	$0.10
24-3-06	J-7	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	924	$27.67	797,025	cy	$249.62	$230,675	$0.29
24-3-07	J-7	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-08	J-7	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	98	$26.59	75,400	lineal feet	$85.39	$8,330	$0.11
24-3-09	J-7	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	26	$26.59	15,200	lineal feet	$85.39	$2,225	$0.15
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	196	$27.67	8,910	feet	$113.01	$22,005	$2.48
24-3-11	J-7	Topsoil/Suitable Material Replacement	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	211	$23.94	29,700	cy	$104.28	$22,048	$0.74
24-3-12	J-7	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$26.59	0	cy	$211.52	$0	N/A
24-3-13	J-7	Revegetation	Topsoil Replacement	637E P-P Scraper	$184.93	1,645	$26.59	343,240	cy	$211.52	$347,955	$1.01
24-3-14	J-7	Revegetation	Revegetation	Miscellaneous	-	-	-	213	acres	-	$350,403	$1,647.00
			Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	31	acres	-	$50,563	$1,647.00
24-3-02	N-6			J-7 Subtotal		4,738					$1,596,547	
24-3-03	N-6	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$186.78	1,928	-	-	-	-	$1,410,110	$1,410,110
24-3-04	N-6	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	4,058	$27.67	4,402,238	cy	$249.62	$1,012,886	$0.23
24-3-05	N-6	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,368	$27.67	3,791,230	cy	$249.62	$1,090,443	$0.29
24-3-06	N-6	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	567	$27.67	1,026,520	cy	$249.62	$141,474	$0.14
24-3-07	N-6	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,394	$27.67	2,927,742	cy	$249.62	$847,347	$0.29
24-3-08	N-6	General Grading	General Grading	D11R Dozer	$221.95	625	$27.67	57	acres	$249.62	$156,015	$2,737.11
24-3-09	N-6	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	239	$26.59	185,020	lineal feet	$85.39	$20,441	$0.11
24-3-10	N-6	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	49	$26.59	28,800	lineal feet	$85.39	$4,218	$0.15
24-3-11	N-6	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	390	$27.67	17,760	feet	$113.01	$44,091	$2.48
24-3-12	N-6	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	386	$23.94	59,250	cy	$104.28	$41,322	$0.70
24-3-13	N-6	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$26.59	0	cy	$211.52	$0	N/A
24-3-14	N-6	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	3,762	$26.59	814,278	cy	$211.52	$800,085	$0.98
		Revegetation	Revegetation	Miscellaneous	-	-	-	505	acres	-	$829,624	$1,642.82
		Revegetation	Revegetation of Topsoil Stockpiles	Miscellaneous	-	-	-	77	acres	-	$126,984	$1,647.00
				N-6 Subtotal		19,798					$6,626,817	
24-4-04	Black Mesa	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.80	1.9	$26.59	3,000	lineal feet	$85.39	$166	$0.06
24-5-01	Black Mesa	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$2,108,472	$2,108,471.50
24-5-02	Black Mesa	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$248.80	7	$27.67	5,152	cy	$274.67	$1,876	$0.36
24-5-02	Black Mesa	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$42,246	$42,246
24-5-03	Black Mesa	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	2,214	$27.67	1,489,464	cy	$249.62	$552,756	$0.37
24-5-04	Black Mesa	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	338	$27.67	1,140,304	cy	$271.53	$91,226	$0.08
24-5-05	Black Mesa	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	1,695	$27.67	1,140,304	cy	$249.62	$423,170	$0.37
24-5-06	Black Mesa	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	678	$26.59	496,377	cy	$211.52	$185,795	$0.37
24-5-07	Black Mesa	Revegetation	Revegetation	Miscellaneous	-	-	-	398	acres	-	$651,981	$1,647.00
				Major Facilities Subtotal		5,133					$4,057,669	
24-5-19	J-3 Airport	Asphalt Removal	Asphalt Removal/Disposal	D11R Dozer - Ripper Equipped	$243.88	27	$27.67	9,066	cy	$271.53	$7,253	$0.80
24-5-20	J-3 Airport	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	27	$27.67	90,656	cy	$271.53	$7,253	$0.08
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	370	$27.67	182,647	cy	$249.62	$92,429	$0.51
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	4,640	feet	-	$13,814	$2.98
24-5-33	Black Mesa Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	102	$27.67	182,647	cy	$249.62	$25,418	$0.14
24-5-34	Black Mesa Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	181	$27.67	547,942	cy	$271.53	$43,837	$0.08
24-5-35	Black Mesa Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	3,975	$27.67	362	acres	$249.62	$992,179	$2,738.74
24-5-36	Black Mesa Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,310	$26.59	935,154	cy	$211.52	$700,081	$0.75
24-5-37	Black Mesa Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	362	acres	-	$596,668	$1,647.00
24-5-08	Black Mesa Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	5,244	feet	-	$241,826	$46.12
24-5-50	Black Mesa Draglines	Dragline Removal	Disassemble and Remove Draglines	Miscellaneous	-	-	-	-	-	-	$300,000	N/A
24-5-43	Black Mesa Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Site Reclamation	Concrete Removal/Disposal	-	-	-	-	-	-	$8,093	$8,092.90
24-5-44	Black Mesa Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	79	$27.67	7	acres	$249.62	$19,719	$2,738.74
24-5-44	Black Mesa Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	11	acres	-	$18,446	$1,647.00
24-5-45	Black Mesa Monitoring Wells	Reclaim Monitoring Wells	Well/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$38,000	$38,000
24-5-21	Black Mesa Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	47	$27.67	76,562	cy	$249.62	$11,688	$0.15
24-5-22	Black Mesa Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	66	$27.67	229,686	cy	$271.53	$18,376	$0.08
24-5-23	Black Mesa Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	1,041	$27.67	95	acres	$249.62	$259,939	$2,738.74
24-5-24	Black Mesa Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	939	$26.59	244,999	cy	$211.52	$198,691	$0.81
24-5-25	Black Mesa Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	95	acres	-	$156,320	$1,647.00
24-5-09	Black Mesa Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	123,901	feet	-	$140,782	$1.14
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	432	$27.67	213,080	cy	$249.62	$107,829	$0.51

Table 24-1-4
BLACK MESA MINE
Direct Costs by Mine Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	5,040	feet	-	$14,014	$2.78
24-5-27	Black Mesa Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	204	$27.67	256,719	cy	$249.62	$51,037	$0.20
24-5-28	Black Mesa Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	227	$27.67	770,157	cy	$271.53	$61,615	$0.08
24-5-29	Black Mesa Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	4,365	$27.67	398	acres	$249.62	$1,089,494	$2,738.74
24-5-30	Black Mesa Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,661	$28.59	1,026,676	cy	$211.52	$816,770	$0.80
24-5-31	Black Mesa Primary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	398	acres	-	$655,190	$1,647.00
24-5-10	Black Mesa Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	105	$27.67	355,014	cy	$271.53	$28,402	$0.08
24-5-11	Black Mesa Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	528	$27.67	355,014	cy	$249.62	$131,747	$0.37
24-5-12	Black Mesa Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	475	$28.59	189,341	cy	$211.52	$100,400	$0.53
24-5-13	Black Mesa Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	73	acres	-	$120,807	$1,647.00
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	357	$27.67	256,052	cy	$249.62	$89,083	$0.35
24-5-39	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	552	$27.67	39,393	cy	$116.34	$64,218	$1.63
24-5-40	Black Mesa Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment Into Basin	D11R Dozer	$221.95	819	$27.67	587,408	cy	$249.62	$204,385	$0.35
24-5-41	Black Mesa Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	2,430	$27.67	222	acres	$249.62	$606,986	$2,738.74
24-5-42	Black Mesa Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,150	$28.59	571,817	cy	$211.52	$454,819	$0.80
		Revegetation	Revegetation	Miscellaneous	-	-	-	222	acres	-	$364,843	$1,647.00
				Other Facilities Subtotal		26,650					$5,852,088	
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	16H Grader	$67.36	9,600	$27.67	-	-	$95.03	$912,303	$912,303
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	4,800	$21.30	-	-	$58.67	$281,635	$281,635
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	8,800	$21.30	-	-	$145.97	$1,284,558	$1,284,558
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	26,000	$21.30	-	-	$29.33	$821,137	$821,137
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	4,800	-	-	-	$11.49	$55,140	$55,140
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	3,200	-	-	-	$1.09	$3,488	$3,488
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	3,200	-	-	-	$1.62	$5,176	$5,176
				Diesel Floodlighting	$5.73	43,200	-	-	-	$5.73	$247,822	$247,822
				Support Equipment Subtotal		120,000					$4,149,514	
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	155	$28.59	-	-	$211.52	$32,743	$32,743.30
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	230	$27.67	-	-	$249.62	$57,314	$57,313.85
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.80	22	$28.59	-	-	$85.39	$1,913	$1,912.78
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.36	11	$27.67	-	-	$95.03	$1,064	$1,064
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	988F Series II Loader	$85.34	22	$27.67	-	-	$113.01	$2,531	$2,531.48
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	DrillTech D55SP	$196.78	8	$28.59	-	-	$223.37	$1,787	$1,787.00
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	769D Dump Truck	$80.34	34	$23.94	-	-	$104.28	$3,504	$3,503.65
				LS-208H Linkbelt	$88.67	137	$27.67	-	-	$116.34	$15,815	$15,815.28
				Mobilization Subtotal		619					$116,772	
BLACK MESA MINE SUBTOTAL						178,937					$25,299,127	
24-5-01	Joint	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$131,422	$131,421.74
24-5-02	Joint	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$248.90	1	$27.67	770	cy	$274.57	$280	$0.36
24-5-02	Joint	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$6,315	$6,315
24-5-03	Joint	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	745	$27.67	500,918	cy	$249.62	$185,892	$0.37
24-5-04	Joint	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	112	$27.67	379,154	cy	$271.53	$30,334	$0.08
24-5-05	Joint	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	564	$27.67	379,154	cy	$249.62	$140,705	$0.37
24-5-06	Joint	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	309	$28.59	161,157	cy	$211.52	$65,348	$0.41
24-5-07	Joint	Revegetation	Revegetation	Miscellaneous	-	-	-	131	acres	-	$215,823	$1,647.00
JOINT FACILITIES (BLACK MESA ALLOCATION) TOTAL						1,730					$776,919	
				TOTAL		178,667 hours					$26,075,546	

KAYENTA MINE

Direct Costs by Mine Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-02	J-19	Highwall Reduction	Cast/Blast Highwall	Drillech D55SP	$198.75	932	-	-	-	-	$660,894	$660,894
24-3-03	J-19	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	1,042	$27.67	1,048,068	cy	$249.62	$260,004	$0.25
24-3-04	J-19	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,972	$27.67	2,361,300	cy	$249.62	$492,283	$0.21
24-3-05	J-19	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	272	$27.67	460,370	cy	$249.62	$67,996	$0.14
24-3-06	J-19	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	824	$27.67	711,000	cy	$249.62	$205,778	$0.29
24-3-07	J-19	General Grading	General Grading	D11R Dozer	$221.95	2,523	$27.67	230	acres	$249.62	$629,910	$2,738.74
24-3-08	J-19	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	78	$26.59	68,580	linear feet	$85.39	$6,472	$0.11
24-3-09	J-19	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	16	$26.59	9,600	linear feet	$85.39	$1,405	$0.15
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	139	$27.67	6,340	feet	$113.01	$15,722	$2.48
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	114	$23.94	21,150	cy	$104.28	$11,890	$0.56
24-3-11	J-19	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	1,236	$26.59	545,850	cy	$211.52	$261,589	$0.41
24-3-12	J-19	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,381	$26.59	1,076,416	cy	$211.52	$503,632	$0.47
24-3-13	J-19	Revegetation	Revegetation	Miscellaneous	-	-	-	417	acres	-	$689,799	$1,647.00
24-3-14	J-19	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	11	acres	-	$17,294	$1,647.00
24-4-01	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,103	$27.67	201	acres	$249.62	$275,265	$1,369.37
24-4-02	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	143	$27.67	201	acres	$271.53	$38,918	$193.61
24-4-03	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	201	acres	-	$165,537	$823.50
24-4-05	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	568	$27.67	103	acres	$249.62	$141,665	$1,369.37
24-4-06	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	74	$27.67	500,780	cy	$271.53	$20,032	$0.04
24-4-07	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	103	acres	-	$85,205	$823.50
				J-19 Subtotal		13,418					$4,566,617	
24-3-02	J-19	Highwall Reduction	Cast/Blast Highwall	Drillech D55SP	$198.75	6,009	-	-	-	-	$4,391,342	$4,391,342
24-3-03	J-19	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	12,240	$27.67	12,310,350	cy	$249.62	$3,055,370	$0.25
24-3-04	J-19	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	11,443	$27.67	13,817,220	cy	$249.62	$2,856,414	$0.21
24-3-05	J-19	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	1,542	$27.67	2,760,000	cy	$249.62	$384,929	$0.14
24-3-06	J-19	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	7,598	$27.67	6,812,151	cy	$249.62	$1,971,573	$0.29
24-3-07	J-19	General Grading	General Grading	D11R Dozer	$221.95	5,354	$27.67	488	acres	$249.62	$1,336,505	$2,738.74
24-3-08	J-19	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	215	$26.59	186,170	linear feet	$85.39	$18,396	$0.11
24-3-09	J-19	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	29	$26.59	16,900	linear feet	$85.39	$2,474	$0.15
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	361	$27.67	16,430	feet	$113.01	$40,743	$2.48
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	360	$23.94	54,750	cy	$104.28	$39,660	$0.72
24-3-11	J-19	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	8,316	$26.59	4,337,946	cy	$211.52	$1,759,014	$0.41
24-3-12	J-19	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	21,323	$26.59	7,229,913	cy	$211.52	$4,510,260	$0.62
24-3-13	J-19	Revegetation	Revegetation	Miscellaneous	-	-	-	2,801	acres	-	$4,812,991	$1,647.00
24-3-14	J-19	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	167	acres	-	$274,555	$1,647.00
24-4-01	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,210	$27.67	403	acres	$249.62	$551,764	$1,369.37
24-4-02	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	287	$27.67	403	acres	$271.53	$78,011	$193.61
24-4-03	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	403	acres	-	$331,815	$823.50
24-4-05	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	8,127	$27.67	1,482	acres	$249.62	$2,028,800	$1,369.37
24-4-06	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	1,056	$27.67	7,170,738	cy	$271.53	$286,842	$0.04
24-4-07	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	1,482	acres	-	$1,220,062	$823.50
				J-19 Subtotal		86,791					$29,751,816	
24-3-02	J-21 Single Width	Highwall Reduction	Cast/Blast Highwall	Drillech D55SP	$198.75	1,895	-	-	-	-	$1,455,880	$1,455,880
24-3-03	J-21 Single Width	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	3,572	$27.67	3,594,413	cy	$249.62	$891,881	$0.25
24-3-04	J-21 Single Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	3,475	$27.67	4,195,560	cy	$249.62	$867,342	$0.21
24-3-05	J-21 Single Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	648	$27.67	1,173,330	cy	$249.62	$161,707	$0.14
24-3-06	J-21 Single Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,041	$27.67	2,823,178	cy	$249.62	$759,200	$0.29
24-3-07	J-21 Single Width	General Grading	General Grading	D11R Dozer	$221.95	2,194	$27.67	200	acres	$249.62	$547,746	$2,738.74
24-3-08	J-21 Single Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	201	$26.59	155,820	linear feet	$85.39	$17,193	$0.11
24-3-09	J-21 Single Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	42	$26.59	24,430	linear feet	$85.39	$3,578	$0.15
24-3-10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	338	$27.67	15,415	feet	$113.01	$38,229	$2.48
24-3-10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	445	$23.94	51,350	cy	$104.28	$46,427	$0.90
24-3-11	J-21 Single Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,656	$26.59	1,365,673	cy	$211.52	$561,883	$0.41
24-3-12	J-21 Single Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	9,536	$26.59	2,309,454	cy	$211.52	$2,017,015	$0.87
24-3-13	J-21 Single Width	Revegetation	Revegetation	Miscellaneous	-	-	-	895	acres	-	$1,473,530	$1,647.00
24-3-14	J-21 Single Width	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	157	acres	-	$257,758	$1,647.00
24-4-01	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,363	$27.67	431	acres	$249.62	$589,777	$1,369.37
24-4-02	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	307	$27.67	431	acres	$271.53	$83,388	$193.61
24-4-03	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	431	acres	-	$354,875	$823.50
24-4-05	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	14,805	$27.67	2,699	acres	$249.62	$3,695,766	$1,369.37
24-4-06	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	1,924	$27.67	13,062,852	cy	$271.53	$522,529	$0.04
24-4-07	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	2,699	acres	-	$2,222,540	$823.50
24-6-01	J-21 Single Width	Phase I Exploration Bond	-	-	-	-	-	-	-	-	$284,100	$284,100.00
				J-21 Single WidthSubtotal		47,543					$16,851,956	
24-3-04	J-21 Double Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,891	$27.67	4,943,110	cy	$249.62	$1,220,809	$0.25
24-3-05	J-21 Double Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	729	$27.67	883,800	cy	$249.62	$181,895	$0.21
24-3-06	J-21 Double Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-07	J-21 Double Width	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-08	J-21 Double Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	67	$26.59	52,000	linear feet	$85.39	$5,745	$0.11
24-3-09	J-21 Double Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	9,000	linear feet	$85.39	$1,317	$0.15
24-3-10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	8,260	feet	$113.01	$15,524	$2.48
24-3-10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	89	$23.94	20,850	cy	$104.28	$9,294	$0.45
24-3-11	J-21 Double Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,583	$26.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-12	J-21 Double Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$26.59	2,226,526	cy	$211.52	$1,146,947	$0.51
24-3-13	J-21 Double Width	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,894	$1,647.00
24-3-14	J-21 Double Width	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	41	acres	-	$67,382	$1,647.00
				J-21 Double Width Subtotal		14,870					$4,853,604	
24-4-01	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,083	$1,369.37

Table 24-1-4
KAYENTA MINE
Direct Costs by Mine Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-4-02	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	134	$27.67	188	acres	$271.53	$36,486	$193.61
24-4-03	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188.	acres	-	$155,182	$823.50
24-4-05	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,083	$1,369.37
24-4-06	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	134	$27.67	912,117	cy	$271.53	$36,486	$0.04
24-4-07	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,182	$823.50
				N-1 Subtotal		2,336					$899,483	
24-4-01	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	435	$27.67	79	acres	$249.62	$108,657	$1,369.37
24-4-02	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	57	$27.67	79	acres	$271.53	$15,362	$193.61
24-4-03	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	79	acres	-	$65,343	$823.50
24-4-05	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-06	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	0	$27.67	0	cy	$271.53	$0	N/A
24-4-07	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
				N-2 Subtotal		492					$189,362	
24-4-01	N-7/8	General Grading at 50%	General Grading	D11R Dozer	$221.95	89	$27.67	18	acres	$249.62	$24,649	$1,369.37
24-4-02	N-7/8	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	13	$27.67	18	acres	$271.53	$3,485	$193.61
24-4-03	N-7/8	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	18	acres	-	$14,823	$823.50
				N-7/8 Subtotal		112					$42,957	
24-4-01	N-10	General Grading at 50%	General Grading	D11R Dozer	$221.95	112	$27.67	20	acres	$249.62	$27,984	$1,369.37
24-4-02	N-10	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	15	$27.67	20	acres	$271.53	$3,954	$193.61
24-4-03	N-10	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	20	acres	-	$16,817	$823.50
				N-10 Subtotal		127					$48,734	
24-3-02	N-11	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$196.78	0	-	-	-	-	$0	$0
24-3-03	N-11	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	1,945	$27.67	1,258,110	cy	$249.62	$485,496	$0.39
24-3-04	N-11	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	6,668	$27.67	3,774,330	cy	$249.62	$1,664,559	$0.44
24-3-05	N-11	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	497	$27.67	889,770	cy	$249.62	$124,005	$0.14
24-3-06	N-11	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-07	N-11	General Grading	General Grading	D11R Dozer	$221.95	7,109	$27.67	648	acres	$249.62	$1,774,704	$2,738.74
24-3-08	N-11	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	168	$26.59	129,920	lineal feet	$85.39	$14,354	$0.11
24-3-09	N-11	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	19	$26.59	11,300	lineal feet	$85.39	$1,654	$0.15
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	105	$23.94	24,500	cy	$104.28	$10,921	$0.45
24-3-11	N-11	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,563	$26.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-12	N-11	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$26.59	2,228,526	cy	$211.52	$1,146,947	$0.51
24-3-13	N-11	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,094	$1,647.00
24-3-14	N-11	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	40	acres	-	$65,388	$1,647.00
24-4-01	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	511	$27.67	93	acres	$249.62	$127,588	$1,369.37
24-4-02	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	66	$27.67	93	acres	$271.53	$18,039	$193.61
24-4-03	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	93	acres	-	$76,726	$823.50
24-4-05	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	488	$27.67	89	acres	$249.62	$121,874	$1,369.37
24-4-06	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	63	$27.67	430,760	cy	$271.53	$17,231	$0.04
24-4-07	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	89	acres	-	$73,292	$823.50
				N-11 Subtotal		29,752					$7,945,888	
24-3-03	N-14	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	5,606	$27.67	2,620,740	cy	$249.62	$699,753	$0.25
24-3-04	N-14	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	4,672	$27.67	2,620,740	cy	$249.62	$583,126	$0.21
24-3-05	N-14	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	132	$27.67	239,260	cy	$249.62	$32,975	$0.14
24-3-06	N-14	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	4,099	$27.67	3,535,600	cy	$249.62	$1,023,273	$0.29
24-3-07	N-14	General Grading	General Grading	D11R Dozer	$221.95	461	$27.67	42	acres	$249.62	$115,027	$2,738.74
24-3-08	N-14	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	48	$26.59	37,410	lineal feet	$85.39	$4,133	$0.11
24-3-09	N-14	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	12	$26.59	6,760	lineal feet	$85.39	$992	$0.15
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	25	$23.94	4,550	cy	$104.28	$2,580	$0.56
24-3-11	N-14	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	560	$26.59	282,321	cy	$211.52	$118,534	$0.41
24-3-12	N-14	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,119	$26.59	487,201	cy	$211.52	$448,303	$0.92
24-3-13	N-14	Revegetation	Revegetation	Miscellaneous	-	-	-	189	acres	-	$310,855	$1,647.00
24-3-14	N-14	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	15	acres	-	$25,034	$1,647.00
24-4-01	N-14	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,533	$27.67	280	acres	$249.62	$382,764	$1,369.37
24-4-02	N-14	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	199	$27.67	280	acres	$271.53	$54,120	$193.61
24-4-03	N-14	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	280	acres	-	$230,195	$823.50
				N-14 Subtotal		16,629					$4,049,870	
24-3-03	N-14E	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	494	$27.67	497,405	cy	$249.62	$123,393	$0.25
24-3-04	N-14E	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	412	$27.67	497,405	cy	$249.62	$102,828	$0.21
24-3-05	N-14E	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	286	$27.67	516,610	cy	$249.62	$71,502	$0.14
24-3-06	N-14E	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	193	$27.67	166,200	cy	$249.62	$48,102	$0.29
24-3-07	N-14E	General Grading	General Grading	D11R Dozer	$221.95	230	$27.67	21	acres	$249.62	$57,514	$2,738.74
24-3-08	N-14E	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	32	$26.59	24,940	lineal feet	$85.39	$2,755	$0.11
24-3-09	N-14E	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	8	$26.59	4,520	lineal feet	$85.39	$662	$0.15
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	104	$27.67	4,750	feet	$113.01	$11,779	$2.48
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	51	$23.94	12,100	cy	$104.28	$5,285	$0.44
24-3-11	N-14E	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	419	$26.59	218,694	cy	$211.52	$88,679	$0.41
24-3-12	N-14E	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	554	$26.59	227,808	cy	$211.52	$117,244	$0.51
24-3-13	N-14E	Revegetation	Revegetation	Miscellaneous	-	-	-	141	acres	-	$232,580	$1,647.00
24-3-14	N-14E	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	19	acres	-	$30,799	$1,647.00
24-4-01	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	184	$27.67	35	acres	$249.62	$48,496	$1,369.37
24-4-02	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-03	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,164	$823.50
24-4-05	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$30	$1,369.37
24-4-06	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	0.0	$27.67	106	cy	$271.53	$4	$0.04
24-4-07	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$18	$823.50

KAYENTA MINE
Direct Costs by Mine Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
				N-14E Subtotal		3,004					$877,871	
24-3-02	N-9	Highwall Reduction	Cast/Blast Highwall	Dritech D55SP	$198.78	1,027	-	-	-	-	$750,946	$750,946
24-3-03	N-9	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	884	$27.67	1,012,500	cy	$249.62	$220,840	$0.22
24-3-04	N-9	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,839	$27.67	2,473,670	cy	$249.62	$409,103	$0.17
24-3-05	N-9	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	469	$27.67	822,330	cy	$249.62	$122,051	$0.15
24-3-06	N-9	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	985	$27.67	832,091	0	$249.62	$240,824	$0.29
24-3-07	N-9	General Grading	General Grading	D11R Dozer	$221.95	5,464	$27.67	496	acres	$249.62	$1,363,993	$2,738.74
24-3-08	N-9	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	87	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-09	N-9	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	9,000	lineal feet	$85.39	$1,317	$0.15
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,260	feet	$113.01	$15,524	$2.48
24-3-11	N-9	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	42	$23.94	20,850	cy	$104.28	$4,422	$0.21
24-3-12	N-9	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,874	$26.59	1,499,014	cy	$211.52	$607,842	$0.41
24-3-13	N-9	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	11,605	$26.59	2,498,357	cy	$211.52	$2,454,747	$0.98
24-3-14	N-9	Revegetation	Revegetation	Miscellaneous	-	-	-	968	acres	-	$1,594,058	$1,647.00
24-4-01	N-9	Revegetation	Revegetation of Topsoil Stockpiles	Miscellaneous	-	-	-	77	acres	-	$126,984	$1,647.00
24-4-02	N-9	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,223	$27.67	223	acres	$249.62	$305,370	$1,369.37
24-4-03	N-9	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	156	$27.67	223	acres	$271.53	$43,175	$193.61
24-4-04	N-9	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	223	acres	-	$183,641	$823.50
				N-9 Subtotal		28,591					$6,450,280	
24-5-01	Kayenta	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.80	83	$26.59	128,000	lineal feet	$85.39	$7,071	$0.06
24-5-02	Kayenta	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	-	-	$1,469,164	N/A
24-5-02	Kayenta	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	13	$27.67	9,777	cy	$274.57	$3,559	$0.36
24-5-03	Kayenta	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$80,170	$80,170
24-5-04	Kayenta	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	5,422	$27.67	3,647,398	cy	$249.62	$1,353,560	$0.37
24-5-05	Kayenta	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	819	$27.67	2,779,544	cy	$271.53	$222,373	$0.08
24-5-06	Kayenta	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	4,132	$27.67	2,779,544	cy	$249.62	$1,031,497	$0.37
24-5-07	Kayenta	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,121	$26.59	1,188,472	cy	$211.52	$448,591	$0.37
		Revegetation	Revegetation	Miscellaneous	-	-	-	963	acres	-	$1,588,396	$1,647.00
				Major Facilities Subtotal		12,590					$6,202,382	
24-4-01	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,496	$1,369.37
24-4-02	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	25	$27.67	35	acres	$271.53	$9,857	$193.61
24-4-03	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,164	$823.50
24-4-05	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-06	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0.0	$27.67	0	cy	$271.53	$0	N/A
24-4-07	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	659	$27.67	325,191	cy	$249.62	$164,563	$0.51
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	6,960	feet	-	$20,721	$2.98
24-5-33	Kayenta Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	199	$27.67	325,191	cy	$249.62	$49,731	$0.15
24-5-34	Kayenta Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	287	$27.67	979,574	cy	$271.53	$78,049	$0.08
24-5-35	Kayenta Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	7,077	$27.67	845	acres	$249.62	$1,766,506	$2,738.74
24-5-36	Kayenta Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	5,261	$26.59	1,684,979	cy	$211.52	$1,324,313	$0.80
24-5-37	Kayenta Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	845	acres	-	$1,062,327	$1,647.00
24-5-08	Kayenta Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	88,186	feet	-	$4,065,969	$46.12
24-5-50	Kayenta Draglines and Shovels	Dragline and Shovel Removal	Disassemble and Remove Draglines and Shovels	Miscellaneous	-	-	-	-	-	-	$800,000	N/A
24-5-43	Kayenta Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Concrete Removal/Disposal	Miscellaneous	-	-	-	-	-	-	$12,139	$12,139
24-5-44	Kayenta Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	116	$27.67	11	acres	$249.62	$29,576	$2,738.74
24-5-44	Kayenta Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	17	acres	-	$27,870	$1,647.00
24-5-14	Kayenta Landfarm Areas	Landfarm Removal	Haul Landfarm Material	637E P-P Scraper	$184.93	18	$26.59	3,000	cy	$211.52	$3,410	$1.14
24-5-15	Kayenta Landfarm Areas	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	4	$27.67	12,100	cy	$271.53	$968	$0.08
24-5-16	Kayenta Landfarm Areas	Grade Landfarm Area	Landfarm Grading	D11R Dozer	$221.95	94	$27.67	4,033	cy	$249.62	$23,387	$5.80
24-5-17	Kayenta Landfarm Areas	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12	$26.59	6,050	cy	$211.52	$2,453	$0.41
24-5-18	Kayenta Landfarm Areas	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$4,118	$1,647.00
24-5-45	Kayenta Monitoring Wells	Reclaim Monitoring Wells	Well Site Reclamation	Miscellaneous	-	-	-	-	-	-	$57,000	$57,000
24-5-46	Kayenta N-11 Coal Handling Facility	Cut/Fill Earthwork	Cut/Fill Earthwork	637E P-P Scraper	$184.93	2,476	$26.59	659,063	cy	$211.52	$524,214	$0.80
24-5-47	Kayenta N-11 Coal Handling Facility	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	832	$27.67	422,705	cy	$249.62	$245,197	$0.58
24-5-21	Kayenta Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	81	$27.67	184,705	cy	$249.62	$20,141	$0.11
24-5-22	Kayenta Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	183	$27.67	554,116	cy	$271.53	$44,331	$0.08
24-5-23	Kayenta Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	2,512	$27.67	229	acres	$249.62	$627,099	$2,738.74
24-5-24	Kayenta Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,268	$26.59	591,057	cy	$211.52	$479,341	$0.81
24-5-25	Kayenta Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	229	acres	-	$377,116	$1,647.00
24-5-09	Kayenta Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	201,287	feet	-	$228,680	$1.14
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	1,858	$27.67	817,639	cy	$249.62	$413,766	$0.51
24-5-27	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	11,170	feet	-	$21,020	$1.88
24-5-28	Kayenta Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	829	$27.67	817,639	cy	$249.62	$206,583	$0.25
24-5-29	Kayenta Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	723	$27.67	2,452,916	cy	$271.53	$196,242	$0.08
24-5-30	Kayenta Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	13,901	$27.67	1,267	acres	$249.62	$3,469,989	$2,738.74
24-5-31	Kayenta Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12,298	$26.59	3,270,554	cy	$211.52	$2,601,377	$0.80
24-5-10	Kayenta Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	1,267	acres	-	$2,086,752	$1,647.00
24-5-11	Kayenta Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	5	$27.67	15,972	cy	$271.53	$1,278	$0.08
24-5-12	Kayenta Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	20	$27.67	15,972	cy	$249.62	$4,939	$0.31
24-5-13	Kayenta Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	21	$26.59	8,518	cy	$211.52	$4,517	$0.53
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$5,435	$1,647.00
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	535	$27.67	384,078	cy	$249.62	$133,624	$0.35
24-5-39	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	828	$27.67	59,089	cy	$116.34	$96,324	$1.63
24-5-40	Kayenta Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment Into Basin	D11R Dozer	$221.95	1,228	$27.67	681,112	cy	$249.62	$306,547	$0.35
24-5-41	Kayenta Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	3,648	$27.67	332	acres	$249.62	$910,029	$2,738.74
24-5-41	Kayenta Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,225	$26.59	857,725	cy	$211.52	$682,229	$0.80
		Revegetation	Revegetation	Miscellaneous	-	-	-	332	acres	-	$547,265	$1,647.00

Table 24-1-4
KAYENTA MINE
Direct Costs by Mine Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-46				Other Facilities Subtotal		42,346					$23,811,726	
24-5-46	Kayenta	Equipment Scheduling	Equipment Requirements	16H Grader	$87.38	14,400	$27.67	-	-	$95.03	$1,368,455	$1,368,455
24-5-46	Kayenta	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	7,200	$21.30	-	-	$58.67	$422,453	$422,453
24-5-46	Kayenta	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	13,200	$21.30	-	-	$145.97	$1,926,837	$1,926,837
24-5-46	Kayenta	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-46	Kayenta	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-46	Kayenta	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	42,000	$21.30	-	-	$29.33	$1,231,706	$1,231,706
24-5-46	Kayenta	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-46	Kayenta	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	7,200	-	-	-	$11.49	$82,710	$82,710
24-5-46	Kayenta	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	4,800	-	-	-	$1.09	$5,232	$5,232
24-5-46	Kayenta	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	4,800	-	-	-	$1.62	$7,764	$7,764
				Diesel Floodlighting	$5.73	64,800	-	-	-	$5.73	$371,434	$371,434
24-5-49				Support Equipment Subtotal		180,000					$8,224,271	
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$164.93	232	$28.59	-	-	$211.52	$49,115	$49,115
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	344	$27.67	-	-	$249.62	$85,971	$85,971
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$56.80	34	$28.59	-	-	$85.39	$2,869	$2,869
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	966F Loader Series II	$85.34	34	$27.67	-	-	$113.01	$3,797	$3,797
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$87.38	17	$27.67	-	-	$95.03	$1,597	$1,597
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	DrilTech D55SP	$199.78	12	$28.59	-	-	$223.37	$2,680	$2,680
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	785D Rear Dump Truck	$60.34	50	$23.94	-	-	$104.28	$5,255	$5,255
				LS-206H Linkbelt	$86.67	205	$27.67	-	-	$118.34	$23,573	$23,573
KAYENTA MINE TOTAL				Mobilization Subtotal		928					$175,157	
24-5-01	Joint	Facilities Demolition	Demolish Facilities									
24-5-02	Joint	Concrete Removal	Concrete Removal	Miscellaneous	-	-	-	-	ls	-	$197,133	$197,132.82
24-5-02	Joint	Concrete Removal	Concrete Disposal	D11R Dozer - Ripper Equipped	$246.90	2	$27.67	1,155	cy	$274.57	$421	$0.36
24-5-03	Joint	Surfacing Removal	Surfacing Removal/Disposal	Miscellaneous	-	-	-	-	-	-	$9,472	$9,472
24-5-04	Joint	Surface Ripping	Dozer Ripping	D11R Dozer	$221.95	1,117	$27.67	751,377	cy	$249.62	$278,836	$0.37
24-5-05	Joint	Grade Facilities Areas	Facilities Area Grading	D11R Dozer - Ripper Equipped	$243.86	168	$27.67	568,731	cy	$271.53	$45,501	$0.08
24-5-06	Joint	Topsoil Replacement	Haul and Place Topsoil	D11R Dozer	$221.95	846	$27.67	568,731	cy	$249.62	$211,055	$0.37
24-5-07	Joint	Revegetation	Revegetation	637E P-P Scraper	$164.93	483	$26.59	241,735	cy	$211.52	$98,022	$0.41
				Miscellaneous	-	-	-	197	acres	-	$323,734	$1,647.00
NONBEA FACILITIES	KAYENTA ALLOCATION	TOTAL									$1,114,675	
				TOTAL		520,133 hours					$116,207,891	

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-13	J-19	Revegetation	Revegetation	Miscellaneous	-	-	-	2,601	acres	-	$4,812,991	$1,647.00
24-3-14	J-19	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	167	acres	-	$274,555	$1,647.00
24-4-01	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,210	$27.67	403	acres	$249.62	$551,764	$1,369.37
24-4-02	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	287	$27.67	403	acres	$271.53	$78,011	$193.61
24-4-03	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	403	acres	-	$331,815	$823.50
24-4-05	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	8,127	$27.67	1,462	acres	$249.62	$2,028,800	$1,369.37
24-4-06	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	1,056	$27.67	7,170,736	cy	$271.53	$286,842	$0.04
24-4-07	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	1,462	acres	-	$1,220,062	$823.50
				J-19 Subtotal		88,791					$29,751,516	
24-3-02	J-21 Single Width	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$196.78	1,995	-	-	-	-	$1,455,880	$1,455,880
24-3-03	J-21 Single Width	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	3,572	$27.67	3,594,413	cy	$249.62	$891,881	$0.25
24-3-04	J-21 Single Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	3,475	$27.67	4,185,560	cy	$249.62	$867,342	$0.21
24-3-05	J-21 Single Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	648	$27.67	1,173,330	cy	$249.62	$161,707	$0.14
24-3-06	J-21 Single Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,041	$27.67	2,623,178	cy	$249.62	$759,200	$0.29
24-3-07	J-21 Single Width	General Grading	General Grading	D11R Dozer	$221.95	2,194	$27.67	200	acres	$249.62	$547,748	$2,738.74
24-3-08	J-21 Single Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	201	$26.59	155,620	lineal feet	$85.39	$17,193	$0.11
24-3-09	J-21 Single Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	42	$26.59	24,430	lineal feet	$85.39	$3,576	$0.15
24-3-10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	338	$27.67	15,415	feet	$113.01	$38,226	$2.48
24-3-11	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	445	$23.94	91,350	cy	$104.28	$46,427	$0.00
24-3-12	J-21 Single Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,858	$26.59	1,365,673	cy	$211.52	$561,883	$0.41
24-3-13	J-21 Single Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	9,538	$26.59	2,309,454	cy	$211.52	$2,017,015	$0.87
24-3-14	J-21 Single Width	Revegetation	Revegetation	Miscellaneous	-	-	-	895	acres	-	$1,473,530	$1,647.00
24-4-01	J-21 Single Width	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	157	acres	-	$257,756	$1,647.00
24-4-02	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,363	$27.67	431	acres	$249.62	$589,777	$1,369.37
24-4-03	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	307	$27.67	431	acres	$271.53	$83,388	$193.61
24-4-05	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	431	acres	-	$354,875	$823.50
24-4-06	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	14,805	$27.67	2,699	acres	$249.62	$3,695,788	$1,369.37
24-4-07	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	1,924	$27.67	13,062,652	cy	$271.53	$522,529	$0.04
24-6-01	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	2,699	acres	-	$2,222,540	$823.50
		Phase I Exploration Bond	-	-	-	-	-	-	-	-	$284,100	$284,100.00
				J-21 Single Wide Subtotal		47,543					$18,851,956	
24-3-04	J-21 Double Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,891	$27.67	4,943,110	cy	$249.62	$1,220,809	$0.25
24-3-05	J-21 Double Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	729	$27.67	883,800	cy	$249.62	$181,895	$0.21
24-3-06	J-21 Double Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-07	J-21 Double Width	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-08	J-21 Double Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	67	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-09	J-21 Double Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	9,000	lineal feet	$85.39	$1,317	$0.15
24-3-10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,260	feet	$113.01	$15,524	$2.48
24-3-11	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	89	$23.94	20,850	cy	$104.28	$9,294	$0.45
24-3-12	J-21 Double Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,563	$26.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-13	J-21 Double Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$26.59	2,226,526	cy	$211.52	$1,146,947	$0.51
24-3-14	J-21 Double Width	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,894	$1,647.00
		Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	41	acres	-	$67,382	$1,647.00
				J-21 Double Wide Subtotal		14,879					$4,853,804	
24-4-01	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,063	$1,369.37
24-4-02	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	134	$27.67	188	acres	$271.53	$36,486	$193.61
24-4-03	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
24-4-05	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,063	$1,369.37
24-4-06	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	134	$27.67	912,117	cy	$271.53	$36,486	$0.04
24-4-07	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
				N-1 Subtotal		2,336					$899,483	
24-4-01	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	435	$27.67	79	acres	$249.62	$108,657	$1,369.37
24-4-02	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	57	$27.67	79	acres	$271.53	$15,362	$193.61
24-4-03	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	79	acres	-	$65,343	$823.50
24-4-05	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-06	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0	$27.67	0	cy	$271.53	$0	N/A
24-4-07	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
				N-2 Subtotal		492					$189,362	
24-4-01	N-7/8	General Grading at 50%	General Grading	D11R Dozer	$221.95	99	$27.67	18	acres	$249.62	$24,849	$1,369.37
24-4-02	N-7/8	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	13	$27.67	18	acres	$271.53	$3,485	$193.61
24-4-03	N-7/8	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	18	acres	-	$14,823	$823.50
				N-7/8 Subtotal		112					$42,957	
24-4-01	N-10	General Grading at 50%	General Grading	D11R Dozer	$221.95	112	$27.67	20	acres	$249.62	$27,964	$1,369.37
24-4-02	N-10	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	15	$27.67	20	acres	$271.53	$3,954	$193.61
24-4-03	N-10	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	20	acres	-	$16,817	$823.50
				N-10 Subtotal		127					$48,734	
24-3-02	N-11	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$196.78	0	-	-	-	-	$0	$0
24-3-03	N-11	Backfill Mine Pits	Doze Final Two Spoils (Highwall Side)	D11R Dozer	$221.95	1,845	$27.67	1,258,110	cy	$249.62	$485,496	$0.39
24-3-04	N-11	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	6,668	$27.67	3,774,330	cy	$249.62	$1,664,559	$0.44

Table 24-1-4
JOINT MINES
Direct Costs by Mine Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-05	N-11	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	497	$27.67	896,770	cy	$249.62	$124,005	$0.14
24-3-06	N-11	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-07	N-11	General Grading	General Grading	D11R Dozer	$221.95	7,109	$27.67	849	acres	$249.62	$1,774,704	$2,738.74
24-3-08	N-11	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	168	$26.59	129,920	lineal feet	$85.39	$14,354	$0.11
24-3-09	N-11	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	19	$26.59	11,300	lineal feet	$85.39	$1,654	$0.15
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	181	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	105	$23.94	24,500	cy	$104.28	$10,921	$0.45
24-3-11	N-11	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,563	$26.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-12	N-11	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$26.59	2,228,526	cy	$211.52	$1,146,947	$0.51
24-3-13	N-11	Revegetation	Revegetation	Miscellaneous	-	-	-	883	acres	-	$1,421,894	$1,647.00
24-3-14	N-11	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	40	acres	-	$65,388	$1,647.00
24-4-01	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	511	$27.67	93	acres	$249.62	$127,586	$1,369.37
24-4-02	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	66	$27.67	93	acres	$271.53	$18,039	$193.61
24-4-03	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	93	acres	-	$76,726	$823.50
24-4-05	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	488	$27.67	89	acres	$249.62	$121,874	$1,369.37
24-4-06	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	63	$27.67	430,760	cy	$271.53	$17,231	$0.04
24-4-07	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	89	acres	-	$73,292	$823.50
				N-11 Subtotal		26,752					$7,945,888	
24-3-02	N-9	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$190.78	1,027	-	-	-	-	$750,848	$750,848
24-3-03	N-9	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	884	$27.67	1,012,500	cy	$249.62	$220,640	$0.22
24-3-04	N-9	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,639	$27.67	2,473,870	cy	$249.62	$409,103	$0.17
24-3-05	N-9	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	489	$27.67	822,330	cy	$249.62	$122,051	$0.15
24-3-06	N-9	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	0	$249.62	$240,824	$0.29
24-3-07	N-9	General Grading	General Grading	D11R Dozer	$221.95	5,464	$27.67	498	acres	$249.62	$1,363,693	$2,738.74
24-3-08	N-9	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	67	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-09	N-9	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	9,000	lineal feet	$85.39	$1,317	$0.15
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	5,280	feet	$113.01	$15,524	$2.48
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	42	$23.94	20,850	cy	$104.28	$4,422	$0.21
24-3-11	N-9	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,874	$26.59	1,499,014	cy	$211.52	$607,842	$0.41
24-3-12	N-9	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	11,905	$26.59	2,498,357	cy	$211.52	$2,454,747	$0.98
24-3-13	N-9	Revegetation	Revegetation	Miscellaneous	-	-	-	868	acres	-	$1,594,058	$1,647.00
24-3-14	N-9	Revegetation	Revegetation of Topsoil Stockpiles	Miscellaneous	-	-	-	77	acres	-	$126,984	$1,647.00
24-4-01	N-9	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,223	$27.67	223	acres	$249.62	$305,370	$1,369.37
24-4-02	N-9	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	159	$27.67	223	acres	$271.53	$43,175	$193.61
24-4-03	N-9	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	223	acres	-	$183,641	$823.50
				N-9 Subtotal		28,591					$8,450,280	
24-3-03	N-14	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	5,606	$27.67	2,820,740	cy	$249.62	$699,753	$0.25
24-3-04	N-14	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	4,672	$27.67	2,820,740	cy	$249.62	$583,128	$0.21
24-3-05	N-14	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	132	$27.67	239,260	cy	$249.62	$32,975	$0.14
24-3-06	N-14	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	4,099	$27.67	3,535,600	cy	$249.62	$1,023,273	$0.29
24-3-07	N-14	General Grading	General Grading	D11R Dozer	$221.95	461	$27.67	42	acres	$249.62	$115,027	$2,738.74
24-3-08	N-14	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	48	$26.59	37,410	lineal feet	$85.39	$4,133	$0.11
24-3-09	N-14	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	12	$26.59	6,780	lineal feet	$85.39	$992	$0.15
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	181	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	25	$23.94	4,550	cy	$104.28	$2,560	$0.56
24-3-11	N-14	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	560	$26.59	262,321	cy	$211.52	$118,534	$0.41
24-3-12	N-14	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,119	$26.59	487,201	cy	$211.52	$448,303	$0.92
24-3-13	N-14	Revegetation	Revegetation	Miscellaneous	-	-	-	189	acres	-	$310,855	$1,647.00
24-3-14	N-14	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	15	acres	-	$25,034	$1,647.00
24-4-01	N-14	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,533	$27.67	280	acres	$249.62	$382,784	$1,369.37
24-4-02	N-14	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	199	$27.67	280	acres	$271.53	$54,120	$193.61
24-4-03	N-14	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	280	acres	-	$230,195	$823.50
				N-14 Subtotal		19,629					$4,049,870	
24-3-03	N-14E	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	494	$27.67	497,405	cy	$249.62	$123,393	$0.25
24-3-04	N-14E	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	412	$27.67	497,405	cy	$249.62	$102,828	$0.21
24-3-05	N-14E	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	288	$27.67	516,810	cy	$249.62	$71,502	$0.14
24-3-06	N-14E	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	193	$27.67	166,200	cy	$249.62	$48,102	$0.29
24-3-07	N-14E	General Grading	General Grading	D11R Dozer	$221.95	230	$27.67	21	acres	$249.62	$57,514	$2,738.74
24-3-08	N-14E	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	32	$26.59	24,940	lineal feet	$85.39	$2,755	$0.11
24-3-09	N-14E	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	8	$26.59	4,520	lineal feet	$85.39	$682	$0.15
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	104	$27.67	4,750	feet	$113.01	$11,779	$2.48
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	51	$23.94	12,100	cy	$104.28	$5,285	$0.44
24-3-11	N-14E	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	419	$26.59	218,694	cy	$211.52	$88,679	$0.41
24-3-12	N-14E	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	554	$26.59	227,606	cy	$211.52	$117,244	$0.51
24-3-13	N-14E	Revegetation	Revegetation	Miscellaneous	-	-	-	141	acres	-	$232,560	$1,647.00
24-3-14	N-14E	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	19	acres	-	$30,799	$1,647.00
24-4-01	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,498	$1,369.37
24-4-02	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-03	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,184	$823.50

JOINT MINES
Direct Costs by Mine Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-4-05	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	0.1	$27.67	0.02	acres	$249.62	$30	$1,369.37
24-4-06	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0.02	$27.67	106	cy	$271.53	$4	$0.04
24-4-07	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0.02	acres	-	$18	$823.50
				N-14E Subtotal		3,004					$977,671	
24-4-04	Kayenta	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.80	83	$26.59	126,000	lineal feet	$85.39	$7,071	$0.06
24-5-01	Kayenta	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$1,469,164	$1,469,163.86
24-5-02	Kayenta	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	13	$27.67	9,777	cy	$274.57	$3,559	$0.36
24-5-02	Kayenta	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$80,170	$80,170
24-5-03	Kayenta	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	5,422	$27.67	3,647,398	cy	$249.62	$1,353,560	$0.37
24-5-04	Kayenta	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	819	$27.67	2,779,544	cy	$271.53	$222,373	$0.08
24-5-05	Kayenta	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	4,132	$27.67	2,779,544	cy	$249.62	$1,031,497	$0.37
24-5-06	Kayenta	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,121	$26.59	1,198,472	cy	$211.52	$448,591	$0.37
24-5-07	Kayenta	Revegetation	Revegetation	Miscellaneous	-	-	-	963	acres	-	$1,588,396	$1,647.00
				Major Facilities Subtotal		12,590					$5,202,382	
24-4-01	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,496	$1,369.37
24-4-02	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-03	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,164	$823.50
24-4-05	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-08	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0.0	$27.67	0	cy	$271.53	$0	N/A
24-4-07	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	659	$27.67	325,191	cy	$249.62	$164,563	$0.51
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	6,960	feet	-	$20,721	$2.98
24-5-33	Kayenta Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	199	$27.67	325,191	cy	$249.62	$49,731	$0.15
24-5-34	Kayenta Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	287	$27.67	975,574	cy	$271.53	$78,048	$0.08
24-5-35	Kayenta Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	7,077	$27.67	845	acres	$249.62	$1,766,508	$2,738.74
24-5-36	Kayenta Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	6,261	$26.59	1,864,879	cy	$211.52	$1,324,313	$0.80
24-5-37	Kayenta Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	845	acres	-	$1,082,327	$1,647.00
24-5-08	Kayenta Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	68,166	feet	-	$4,065,989	$46.12
24-5-50	Kayenta Draglines and Shovels	Dragline and Shovel Removal	Disassemble and Remove Draglines and Shovels	Miscellaneous	-	-	-	-	-	-	$800,000	N/A
24-5-43	Kayenta Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Concrete Removal/Disposal	Miscellaneous	-	-	-	-	-	-	$12,139	$12,139
24-5-44	Kayenta Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	118	$27.67	11	acres	$249.62	$29,578	$2,738.74
24-5-44	Kayenta Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	17	acres	-	$27,870	$1,647.00
24-5-14	Kayenta Landform Areas	Landform Removal	Haul Landform Material	637E P-P Scraper	$184.93	18	$26.59	3,000	cy	$211.52	$3,416	$1.14
24-5-15	Kayenta Landform Areas	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	4	$27.67	12,100	cy	$271.53	$968	$0.08
24-5-16	Kayenta Landform Areas	Grade Landform Area	Landform Grading	D11R Dozer	$221.95	84	$27.67	4,033	cy	$249.62	$23,387	$5.80
24-5-17	Kayenta Landform Areas	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12	$26.59	6,050	cy	$211.52	$2,453	$0.41
24-5-18	Kayenta Landform Areas	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$4,118	$1,647.00
24-5-45	Kayenta Monitoring Wells	Reclaim Monitoring Wells	Well/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$57,000	$57,000
24-5-46	Kayenta N-11 Coal Handling Facility	Cut/Fill Earthwork	Cut/Fill Earthwork	637E P-P Scraper	$184.93	2,476	$26.59	659,063	cy	$211.52	$524,214	$0.80
24-5-47	Kayenta N-11 Coal Handling Facility	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	982	$27.67	422,795	cy	$249.62	$245,157	$0.58
24-5-21	Kayenta Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	81	$27.67	184,705	cy	$249.62	$20,141	$0.11
24-5-22	Kayenta Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	163	$27.67	554,116	cy	$271.53	$44,331	$0.08
24-5-23	Kayenta Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	2,512	$27.67	229	acres	$249.62	$627,099	$2,738.74
24-5-24	Kayenta Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,268	$26.59	591,057	cy	$211.52	$479,341	$0.81
24-5-25	Kayenta Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	229	acres	-	$377,119	$1,647.00
24-5-09	Kayenta Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	201,267	feet	-	$228,680	$1.14
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	1,658	$27.67	617,639	cy	$249.62	$413,766	$0.51
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	11,170	feet	-	$21,020	$1.68
24-5-27	Kayenta Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	829	$27.67	817,639	cy	$249.62	$206,883	$0.25
24-5-28	Kayenta Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	723	$27.67	2,452,916	cy	$271.53	$196,242	$0.08
24-5-29	Kayenta Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	13,901	$27.67	1,267	acres	$249.62	$3,469,989	$2,738.74
24-5-30	Kayenta Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12,298	$26.59	3,270,554	cy	$211.52	$2,601,377	$0.80
24-5-31	Kayenta Primary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	1,267	acres	-	$2,086,752	$1,647.00
24-5-10	Kayenta Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	5	$27.67	15,972	cy	$271.53	$1,278	$0.08
24-5-11	Kayenta Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	20	$27.67	15,972	cy	$249.62	$4,939	$0.31
24-5-12	Kayenta Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	21	$26.59	8,518	cy	$211.52	$4,517	$0.53
24-5-13	Kayenta Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$5,435	$1,647.00
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	535	$27.67	384,078	cy	$249.62	$133,624	$0.35
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	828	$27.67	59,089	cy	$116.34	$96,324	$1.63
24-5-39	Kayenta Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment Into Basin	D11R Dozer	$221.95	1,228	$27.67	881,112	cy	$249.62	$308,547	$0.35
24-5-40	Kayenta Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	3,646	$27.67	332	acres	$249.62	$910,029	$2,738.74
24-5-41	Kayenta Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,225	$26.59	857,725	cy	$211.52	$682,229	$0.80
24-5-42	Kayenta Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	332	acres	-	$547,265	$1,647.00
				Other Facilities Subtotal		62,346					$23,811,726	
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	16H Grader	$67.38	14,400	$27.67	-	-	$95.03	$1,368,455	$1,368,455
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	7,200	$21.30	-	-	$58.67	$422,453	$422,453
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	13,200	$21.30	-	-	$145.97	$1,926,837	$1,926,837
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227

Table 24-1-4
JOINT MINES
Direct Costs by Mine Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	42,000	$21.30	-	-	$29.33	$1,231,708	$1,231,708
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	7,200	-	-	-	$11.49	$82,710	$82,710
24-6-48	Kayenta	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	4,800	-	-	-	$1.09	$5,232	$5,232
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	4,800	-	-	-	$1.62	$7,764	$7,764
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Diesel Floodlighting	$5.73	64,800	-	-	-	$5.73	$371,434	$371,434
				Support Equipment Subtotal		180,000					$8,224,271	
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	232	$26.59	-	-	$211.52	$49,115	$49,115
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	344	$27.67	-	-	$249.62	$85,971	$85,971
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.80	34	$26.59	-	-	$85.39	$2,869	$2,869
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	988F Loader Series II	$85.34	34	$27.67	-	-	$113.01	$3,797	$3,797
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.36	17	$27.67	-	-	$95.03	$1,597	$1,597
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	DrilTech D55SP	$196.78	12	$26.59	-	-	$223.37	$2,680	$2,680
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	769D Rear Dump Truck	$80.34	50	$23.94	-	-	$104.28	$5,255	$5,255
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$88.67	205	$27.67	-	-	$116.34	$23,873	$23,873
				Mobilization Subtotal		928					$175,157	
KAYENTA MINE TOTAL						497,531					$105,043,672	
24-5-01	Joint	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$328,554	$328,554.36
24-5-02	Joint	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	3	$27.67	1,925	cy	$274.57	$701	$0.36
24-5-02	Joint	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$15,787	$15,787
24-5-03	Joint	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	1,862	$27.67	1,252,295	cy	$249.62	$464,731	$0.37
24-5-04	Joint	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	279	$27.67	947,885	cy	$271.53	$75,834	$0.08
24-5-05	Joint	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	1,409	$27.67	947,885	cy	$249.62	$351,763	$0.37
24-5-06	Joint	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	772	$26.59	402,892	cy	$211.52	$163,371	$0.41
24-5-07	Joint	Revegetation	Revegetation	Miscellaneous	-	-	-	328	acres	-	$539,557	$1,647.00
JOINT FACILITIES TOTAL						4,325					$1,940,297	
				TOTAL		678,801 hours					$142,283,397	

TABLE	AREA	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-4-01	J-1/N-6	General Grading at 50%	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-02	J-1/N-6	Surface Ripping at 50%	D11R Dozer - Ripper Equipped	$243.88	0	$27.67	0	acres	$271.53	$0	N/A
24-4-03	J-1/N-6	Revegetation at 50%	Miscellaneous	-	-	-	0	acres	-	$0	N/A
			J-1 Subtotal		0					$0	
24-3-02	J-7	Highwall Reduction	Cast/Blast Highwall	$198.78	317	-	-	-	-	$232,424	$232,424
24-3-03	J-7	Backfill Mine Pits	Doze Highwall	$221.95	500	$27.67	788,900	cy	$249.62	$124,934	$0.16
24-3-04	J-7	Backfill Mine Pits	Doze First Two Spoils	$221.95	747	$27.67	883,140	cy	$249.62	$186,425	$0.22
24-3-05	J-7	Backfill Mine Pits	Doze Back Two Spoils	$221.95	74	$27.67	177,080	cy	$249.62	$18,470	$0.10
24-3-06	J-7	Backfill and Grade Ramps	Backfill/Grade Ramps	$221.95	924	$27.67	797,025	cy	$249.62	$230,675	$0.29
24-3-07	J-7	General Grading	General Grading	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-08	J-7	Surface Stabilization	Grade Terraces	$58.80	98	$26.59	75,400	lineal feet	$85.39	$8,330	$0.11
24-3-09	J-7	Surface Stabilization	Grade Drainages/Downdrains	$58.80	26	$26.59	15,200	lineal feet	$85.39	$2,225	$0.15
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	$85.34	196	$27.67	8,910	feet	$113.01	$22,095	$2.48
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	$80.34	211	$23.94	29,700	cy	$104.28	$22,048	$0.74
24-3-11	J-7	Topsoil/Suitable Material Replacement	Suitable Material Placement	$184.93	0	$26.59	0	cy	$211.52	$0	N/A
24-3-12	J-7	Topsoil/Suitable Material Replacement	Topsoil Replacement	$184.93	1,645	$26.59	343,240	cy	$211.52	$347,955	$1.01
24-3-13	J-7	Revegetation	Revegetation	-	-	-	213	acres	-	$350,403	$1,647.00
24-3-14	J-7	Revegetation	Revegetation of Topsoil Stockpile	-	-	-	31	acres	-	$50,563	$1,647.00
			J-7 Subtotal		4,736					$1,596,547	
24-3-02	N-6	Highwall Reduction	Cast/Blast Highwall	$198.78	1,928	-	-	-	-	$1,410,110	$1,410,110
24-3-03	N-6	Backfill Mine Pits	Doze Highwall	$221.95	4,058	$27.67	4,402,238	cy	$249.62	$1,012,946	$0.23
24-3-04	N-6	Backfill Mine Pits	Doze First Two Spoils	$221.95	4,388	$27.67	3,791,230	cy	$249.62	$1,090,443	$0.29
24-3-05	N-6	Backfill Mine Pits	Doze Back Two Spoils	$221.95	567	$27.67	1,026,520	cy	$249.62	$141,474	$0.14
24-3-06	N-6	Backfill and Grade Ramps	Backfill/Grade Ramps	$221.95	3,394	$27.67	2,927,742	cy	$249.62	$847,347	$0.29
24-3-07	N-6	General Grading	General Grading	$221.95	825	$27.67	57	acres	$249.62	$156,108	$2,738.74
24-3-08	N-6	Surface Stabilization	Grade Terraces	$58.80	239	$26.59	185,020	lineal feet	$85.39	$20,441	$0.11
24-3-09	N-6	Surface Stabilization	Grade Drainages/Downdrains	$58.80	49	$26.59	28,800	lineal feet	$85.39	$4,216	$0.15
24-3-10	N-6	Surface Stabilization	Load, haul, and place riprap	$85.34	390	$27.67	17,760	feet	$113.01	$44,081	$2.48
24-3-10	N-6	Surface Stabilization	Load, haul, and place riprap	$80.34	396	$23.94	59,250	cy	$104.28	$41,322	$0.70
24-3-11	N-6	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$26.59	0	cy	$211.52	$0
24-3-12	N-6	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	3,782	$26.59	814,279	cy	$211.52	$800,065
24-3-13	N-6	Revegetation	Revegetation	Miscellaneous	-	-	-	505	acres	-	$831,271
24-3-14	N-6	Revegetation	Revegetation of Topsoil Stockpiles	Miscellaneous	-	-	-	77	acres	-	$126,984
			N-6 Subtotal		19,799					$6,526,817	
24-4-04	Black Mesa	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.80	1.9	$26.59	3,000	lineal feet	$85.39	$166
24-5-01	Black Mesa	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$2,108,472
24-5-02	Black Mesa	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	7	$27.67	5,152	cy	$274.57	$1,876
24-5-02	Black Mesa	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$42,246
24-5-03	Black Mesa	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	2,214	$27.67	1,489,484	cy	$249.62	$552,758
24-5-04	Black Mesa	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	336	$27.67	1,140,304	cy	$271.53	$91,228
24-5-05	Black Mesa	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	1,595	$27.67	1,140,304	cy	$249.62	$423,170
24-5-06	Black Mesa	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	878	$26.59	496,377	cy	$211.52	$185,795
24-5-07	Black Mesa	Revegetation	Revegetation	Miscellaneous	-	-	-	398	acres	-	$651,981
			Major Facilities Subtotal		8,133					$4,057,669	
24-5-19	J-3 Airport	Asphalt Removal	Asphalt Removal/Disposal	D11R Dozer - Ripper Equipped	$243.88	27	$27.67	8,066	cy	$271.53	$7,253
24-5-20	J-3 Airport	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	27	$27.67	80,656	cy	$271.53	$7,253
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	370	$27.67	182,647	cy	$249.62	$92,429
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	4,640	feet	-	$13,814
24-5-33	Black Mesa Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	102	$27.67	182,647	cy	$249.62	$25,418
24-5-34	Black Mesa Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	161	$27.67	547,942	cy	$271.53	$43,837
24-5-35	Black Mesa Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	3,975	$27.67	382	acres	$249.62	$992,178
24-5-36	Black Mesa Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,310	$26.59	835,154	cy	$211.52	$700,081
24-5-37	Black Mesa Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	382	acres	-	$596,668
24-5-08	Black Mesa Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	5,244	feet	-	$241,826
24-5-50	Black Mesa Draglines	Dragline Removal	Disassemble and Remove Draglines	Miscellaneous	-	-	-	-	-	-	$300,000
24-5-43	Black Mesa Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Site Reclamation	Concrete Removal/Disposal	-	-	-	-	-	-	$8,093
24-5-44	Black Mesa Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	79	$27.67	7	acres	$249.62	$19,719
24-5-44	Black Mesa Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	11	acres	-	$18,446
24-5-45	Black Mesa Monitoring Wells	Reclaim Monitoring Wells	Well/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$38,000
24-5-21	Black Mesa Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	47	$27.67	76,562	cy	$249.62	$11,889
24-5-22	Black Mesa Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	68	$27.67	229,686	cy	$271.53	$18,376
24-5-23	Black Mesa Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	1,041	$27.67	95	acres	$249.62	$259,939
24-5-24	Black Mesa Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	939	$26.59	244,999	cy	$211.52	$198,691
24-5-25	Black Mesa Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	95	acres	-	$156,320
24-5-09	Black Mesa Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	123,901	feet	-	$140,762
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	432	$27.67	213,080	cy	$249.62	$107,829
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	5,040	feet	-	$14,014
24-5-27	Black Mesa Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	204	$27.67	256,719	cy	$249.62	$51,037
24-5-28	Black Mesa Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	227	$27.67	770,157	cy	$271.53	$61,615

Table 24-1-4
JOINT MINES
Direct Costs by Mine Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-29	Black Mesa Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	4,385	$27.67	398	acres	$249.62	$1,069,494	$2,738.74
24-5-30	Black Mesa Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,861	$26.59	1,026,876	cy	$211.52	$816,770	$0.80
24-5-31	Black Mesa Primary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	398	acres	-	$855,190	$1,647.00
24-5-10	Black Mesa Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	105	$27.67	355,014	cy	$271.53	$28,402	$0.08
24-5-11	Black Mesa Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	528	$27.67	355,014	cy	$249.62	$131,747	$0.37
24-5-12	Black Mesa Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	475	$26.59	189,341	cy	$211.52	$100,400	$0.53
24-5-13	Black Mesa Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	73	acres	-	$120,807	$1,647.00
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	357	$27.67	256,052	cy	$249.62	$89,083	$0.35
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	552	$27.67	39,393	cy	$116.34	$64,216	$1.63
24-5-39	Black Mesa Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment into Basin	D11R Dozer	$221.95	819	$27.67	567,408	cy	$249.62	$204,365	$0.35
24-5-40	Black Mesa Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	2,430	$27.67	222	acres	$249.62	$606,688	$2,738.74
24-5-41	Black Mesa Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,150	$26.59	571,817	cy	$211.52	$454,819	$0.80
24-5-42	Black Mesa Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	222	acres	-	$364,843	$1,647.00
				Other Facilities Subtotal		26,650					$8,852,088	
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	16H Grader	$67.36	9,600	$27.67	-	-	$95.03	$912,303	$912,303
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	4,800	$21.30	-	-	$58.67	$281,635	$281,635
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	8,600	$21.30	-	-	$145.97	$1,284,558	$1,284,558
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	4,600	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	4,600	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	28,000	$21.30	-	-	$29.33	$821,137	$821,137
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	4,600	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	4,800	-	-	-	$11.49	$55,140	$55,140
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	3,200	-	-	-	$1.09	$3,488	$3,488
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	3,200	-	-	-	$1.62	$5,178	$5,178
				Diesel Floodlighting	$5.73	43,200	-	-	-	$5.73	$247,622	$247,622
				Support Equipment Subtotal		120,000					$4,149,514	
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	155	$26.59	-	-	$211.52	$32,743	$32,743.30
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	230	$27.67	-	-	$249.62	$57,314	$57,313.85
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.80	22	$26.59	-	-	$85.39	$1,913	$1,912.76
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	988F Series II Loader	$85.34	22	$27.67	-	-	$113.01	$2,531	$2,531.48
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.36	11	$27.67	-	-	$95.03	$1,064	$1,064
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	DrilTech D55SP	$196.78	8	$26.59	-	-	$223.37	$1,787	$1,787.00
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	769D Dump Truck	$80.34	34	$23.94	-	-	$104.28	$3,504	$3,503.65
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$88.67	137	$27.67	-	-	$116.34	$15,915	$15,915.28
				Mobilization Subtotal		619					$116,772	
24-3-02	J-16	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$196.78	932	-	-	-	-	$880,894	$680,894
24-3-03	J-16	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	1,042	$27.67	1,048,088	cy	$249.62	$260,004	$0.25
24-3-04	J-16	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,972	$27.67	2,381,300	cy	$249.62	$492,283	$0.21
24-3-05	J-16	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	272	$27.67	493,370	cy	$249.62	$67,998	$0.14
24-3-06	J-16	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	824	$27.67	711,000	cy	$249.62	$205,778	$0.29
24-3-07	J-16	General Grading	General Grading	D11R Dozer	$221.95	2,523	$27.67	230	acres	$249.62	$629,910	$2,738.74
24-3-08	J-16	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	76	$26.59	58,580	lineal feet	$85.39	$6,472	$0.11
24-3-09	J-16	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	16	$26.59	9,600	lineal feet	$85.39	$1,405	$0.15
24-3-10	J-16	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	139	$27.67	6,340	feet	$113.01	$15,722	$2.48
24-3-10	J-16	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	114	$23.94	21,150	cy	$104.28	$11,899	$0.56
24-3-11	J-16	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	1,238	$26.59	645,850	cy	$211.52	$261,889	$0.41
24-3-12	J-16	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,381	$26.59	1,076,416	cy	$211.52	$503,832	$0.47
24-3-13	J-16	Revegetation	Revegetation	Miscellaneous	-	-	-	417	acres	-	$686,799	$1,647.00
24-3-14	J-16	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	11	acres	-	$17,294	$1,647.00
24-4-01	J-16	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,103	$27.67	201	acres	$249.62	$275,265	$1,369.37
24-4-02	J-16	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	143	$27.67	201	acres	$271.53	$38,918	$193.61
24-4-03	J-16	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	201	acres	-	$166,537	$823.50
24-4-05	J-16	General Grading at 50%	General Grading	D11R Dozer	$221.95	568	$27.67	103	acres	$249.62	$141,685	$1,369.37
24-4-06	J-16	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	74	$27.67	500,780	cy	$271.53	$20,032	$0.04
24-4-07	J-16	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	103	acres	-	$85,205	$823.50
				J-16 Subtotal		13,416					$4,368,617	
24-3-02	J-19	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$196.78	8,009	-	-	-	-	$4,391,342	$4,391,342
24-3-03	J-19	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	12,240	$27.67	12,316,350	cy	$249.62	$3,055,370	$0.25
24-3-04	J-19	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	11,443	$27.67	13,817,220	cy	$249.62	$2,856,414	$0.21
24-3-05	J-19	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	1,542	$27.67	2,793,000	cy	$249.62	$384,929	$0.14
24-3-06	J-19	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	7,898	$27.67	6,812,151	cy	$249.62	$1,971,573	$0.29
24-3-07	J-19	General Grading	General Grading	D11R Dozer	$221.95	5,354	$27.67	488	acres	$249.62	$1,336,505	$2,738.74
24-3-08	J-19	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	215	$26.59	166,170	lineal feet	$85.39	$18,358	$0.11
24-3-09	J-19	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	28	$26.59	16,900	lineal feet	$85.39	$2,474	$0.15
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	361	$27.67	16,430	feet	$113.01	$40,743	$2.48
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	380	$23.94	54,750	cy	$104.28	$39,660	$0.72
24-3-11	J-19	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	8,316	$26.59	4,337,948	cy	$211.52	$1,759,014	$0.41
24-3-12	J-19	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	21,323	$26.59	7,228,913	cy	$211.52	$4,510,293	$0.62

BLACK MESA MINE
Direct Costs by Equipment Type

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-11	J-7	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$26.59	0	cy	$211.52	$0	N/A
24-3-11	N-8	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$26.59	0	cy	$211.52	$0	N/A
24-3-12	J-7	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	1,845	$26.59	343,240	cy	$211.52	$347,955	$1.01
24-3-12	N-8	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	3,782	$26.59	814,278	cy	$211.52	$800,085	$0.98
24-5-12	Black Mesa Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	475	$26.59	189,341	cy	$211.52	$100,400	$0.53
24-5-24	Black Mesa Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	939	$26.59	244,998	cy	$211.52	$198,691	$0.81
24-5-30	Black Mesa Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,861	$26.59	1,026,876	cy	$211.52	$816,770	$0.80
24-5-36	Black Mesa Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,310	$26.59	935,154	cy	$211.52	$700,061	$0.75
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	155	$26.59	-	-	$211.52	$32,743	$32,743
24-5-06	Black Mesa	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	878	$26.59	496,377	cy	$211.52	$185,795	$0.37
24-5-08	Joint	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	309	$26.59	402,892	cy	$211.52	$85,348	$0.10
24-5-41	Black Mesa Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,150	$26.59	571,617	cy	$211.52	$454,819	$0.80
[illegible]	[illegible]	[illegible]	[illegible]	637E P-P Scraper Subtotal	[illegible]	17,896	[illegible]	[illegible]	[illegible]	[illegible]	$3,702,846	[illegible]
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	769D Rear Dump Truck	$80.34	34	$23.94	-	-	$104.28	$3,504	$3,504
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	211	$23.94	29,700	cy	$104.28	$22,048	$0.74
24-3-10	N-8	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	396	$23.94	59,250	cy	$104.28	$41,322	$0.70
[illegible]	[illegible]	[illegible]	[illegible]	769D Rear Dump Truck Subtotal	[illegible]	641	[illegible]	[illegible]	[illegible]	[illegible]	$66,879	[illegible]
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	198	$27.67	8,910	feet	$113.01	$22,005	$2.48
24-3-10	N-8	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	390	$27.67	17,760	feet	$113.01	$44,091	$2.48
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	988F Loader Series II	$85.34	22	$27.67	-	-	$113.01	$2,531	$2,531
[illegible]	[illegible]	[illegible]	[illegible]	988F Loader Series II Subtotal	[illegible]	609	[illegible]	[illegible]	[illegible]	[illegible]	$68,627	[illegible]
24-3-03	J-7	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	560	$27.67	786,800	cy	$249.62	$124,034	$0.16
24-3-03	N-8	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	4,068	$27.67	4,402,238	cy	$249.62	$1,001,6888	$0.23
24-3-04	J-7	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	747	$27.67	883,140	cy	$249.62	$186,425	$0.22
24-3-04	N-8	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,368	$27.67	3,791,230	cy	$249.62	$1,090,443	$0.29
24-3-05	J-7	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	74	$27.67	177,090	cy	$249.62	$18,470	$0.10
24-3-05	N-8	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	567	$27.67	1,026,520	cy	$249.62	$141,474	$0.14
24-3-06	J-7	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	924	$27.67	797,025	cy	$249.62	$230,675	$0.29
24-3-06	N-8	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,394	$27.67	2,927,742	cy	$249.62	$847,347	$0.29
24-3-07	J-7	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-07	N-8	General Grading	General Grading	D11R Dozer	$221.95	626	$27.67	57	acres	$249.62	$156,015	$2,737.11
24-4-01	J-1/N-6	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-5-11	Black Mesa Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	528	$27.67	355,014	cy	$249.62	$131,747	$0.37
24-5-21	Black Mesa Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	47	$27.67	76,562	cy	$249.62	$11,688	$0.15
24-5-23	Black Mesa Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	1,041	$27.67	95	acres	$249.62	$259,939	$2,738.74
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	432	$27.67	213,080	cy	$249.62	$107,829	$0.51
24-5-27	Black Mesa Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	204	$27.67	256,719	cy	$249.62	$51,037	$0.20
24-5-29	Black Mesa Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	4,365	$27.67	398	acres	$249.62	$1,089,494	$2,738.74
24-5-03	Black Mesa	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	2,214	$27.67	1,489,494	cy	$249.62	$552,766	$0.37
24-5-03	Joint	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	745	$27.67	1,252,295	cy	$249.62	$185,892	$0.15
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	370	$27.67	182,847	cy	$249.62	$92,429	$0.51
24-5-33	Black Mesa Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	102	$27.67	182,847	cy	$249.62	$25,418	$0.14
24-5-35	Black Mesa Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	3,976	$27.67	362	acres	$249.62	$992,179	$2,738.74
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	357	$27.67	258,052	cy	$249.62	$89,083	$0.35
24-5-39	Black Mesa Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment Into Basin	D11R Dozer	$221.95	819	$27.67	567,408	cy	$249.62	$204,365	$0.36
24-5-44	Black Mesa Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	79	$27.67	7	acres	$249.62	$19,719	$2,738.74
24-5-05	Black Mesa	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	1,696	$27.67	1,140,304	cy	$249.62	$423,170	$0.37
24-5-05	Joint	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	564	$27.67	947,885	cy	$249.62	$140,705	$0.15
24-5-40	Black Mesa Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	2,430	$27.67	222	acres	$249.62	$606,886	$2,738.74
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	230	$27.67	-	-	$249.62	$57,314	$57,314
[illegible]	[illegible]	[illegible]	[illegible]	D11R Dozer Subtotal	[illegible]	36,184	[illegible]	[illegible]	[illegible]	[illegible]	$9,051,917	[illegible]
24-4-02	J-1/N-6	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0	$27.67	0	acres	$271.53	$0	#DIV/0!
24-5-10	Black Mesa Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	105	$27.67	355,014	cy	$271.53	$28,402	$0.08
24-5-19	J-3 Airport	Asphalt Removal	Asphalt Removal/Disposal	D11R Dozer - Ripper Equipped	$243.88	27	$27.67	9,066	cy	$271.53	$7,253	$0.80
24-5-02	Black Mesa	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	7	$27.67	5,152	cy	$274.57	$1,878	$0.36
24-5-02	Joint	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	1	$27.67	1,925	cy	$274.57	$280	$0.15
24-5-20	J-3 Airport	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	27	$27.67	90,656	cy	$271.53	$7,253	$0.08
24-5-22	Black Mesa Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	68	$27.67	229,686	cy	$271.53	$18,378	$0.08
24-5-28	Black Mesa Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	227	$27.67	770,157	cy	$271.53	$61,615	$0.08
24-5-34	Black Mesa Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	161	$27.67	547,942	cy	$271.53	$43,837	$0.08
24-5-04	Black Mesa	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	336	$27.67	1,140,304	cy	$271.53	$91,228	$0.08
24-5-04	Joint	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	112	$27.67	947,885	cy	$271.53	$30,334	$0.03
[illegible]	[illegible]	[illegible]	[illegible]	D11R Dozer - Ripper Equipped Subtotal	[illegible]	1,020	[illegible]	[illegible]	[illegible]	[illegible]	$290,184	[illegible]
24-3-08	J-7	Surface Stabilization	Grade Terraces	D7R Dozer	$56.80	98	$26.59	75,400	linear feet	$85.39	$8,330	$0.11

Table 24-1-5
BLACK MESA MINE
Direct Costs by Equipment Type

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-08	N-8	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	239	$26.59	185,020	lineal feet	$85.39	$20,441	$0.11
24-3-09	J-7	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	26	$26.59	15,200	lineal feet	$85.39	$2,225	$0.15
24-3-09	N-8	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	49	$26.59	28,800	lineal feet	$85.39	$4,216	$0.15
24-4-04	Black Mesa	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.80	1.9	$26.59	3,000	lineal feet	$85.39	$168	$0.06
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.80	22	$26.59	-	-	$85.39	$1,913	$1,913
				D7R Dozer Subtotal		437					$37,291	
24-3-02	J-7	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	317	-	-	-	-	$232,424	$232,424
24-3-02	N-8	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	1,928	-	-	-	-	$1,410,110	$1,410,110
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	Drltech D55SP	$198.78	8	$26.59	-	-	$223.37	$1,787	$1,787
				Drltech D55SP Subtotal		2,253					$1,644,324	
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	552	$27.67	39,393	cy	$116.34	$84,216	$1.63
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$88.67	137	$27.67	-	-	$116.34	$15,915	$15,915
				LS-208H Linkbelt Subtotal		689					$80,131	
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	16H Grader	$67.38	9,600	$27.67	-	-	$95.03	$912,303	$912,303
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.38	11	$27.67	-	-	$95.03	$1,064	$1,064
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	4,800	$21.30	-	-	$58.67	$281,635	$281,635
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	8,800	$21.30	-	-	$145.97	$1,284,558	$1,284,558
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	28,000	$21.30	-	-	$29.33	$821,137	$821,137
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	4,800	-	-	-	$11.49	$55,140	$55,140
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	3,200	-	-	-	$1.09	$3,488	$3,488
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	3,200	-	-	-	$1.62	$5,176	$5,176
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Diesel Floodlighting	$5.73	43,200	-	-	-	$5.73	$247,822	$247,822
				Support Equipment Subtotal		120,000					$4,150,578	
24-3-13	J-7	Revegetation	Revegetation	Miscellaneous	-	-	-	213	acres	-	$350,403	$1,647.00
24-3-13	N-8	Revegetation	Revegetation	Miscellaneous	-	-	-	505	acres	-	$829,824	$1,642.82
24-3-14	J-7	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	31	acres	-	$50,563	$1,647.00
24-3-14	N-8	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	77	acres	-	$126,984	$1,647.00
24-4-03	J-1/N-8	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	#DIV/0!
24-5-01	Black Mesa	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$2,108,472	$2,108,471.50
24-5-01	Joint	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$131,422	$131,421.74
24-5-13	Black Mesa Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	73	acres	-	$120,807	$1,647.00
24-5-02	Black Mesa	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$42,246	$42,245.67
24-5-02	Joint	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$6,315	$6,314.80
24-5-25	Black Mesa Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	95	acres	-	$156,320	$1,647.00
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	5,040	feet	-	$14,014	$2.78
24-5-31	Black Mesa Primary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	398	acres	-	$655,190	$1,647.00
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	4,640	feet	-	$13,814	$2.98
24-5-37	Black Mesa Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	382	acres	-	$596,668	$1,647.00
24-5-42	Black Mesa Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	222	acres	-	$364,643	$1,647.00
24-5-43	Black Mesa Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Site Reclamation	Concrete Removal/Disposal	-	-	-	-	-	-	$8,093	$8,092.90
24-5-44	Black Mesa Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	11	acres	-	$18,446	$1,647.00
24-5-45	Black Mesa Monitoring Wells	Reclaim Monitoring Wells	Wall/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$38,000	$38,000.00
24-5-07	Black Mesa	Revegetation	Revegetation	Miscellaneous	-	-	-	398	acres	-	$651,981	$1,647.00
24-5-07	Joint	Revegetation	Revegetation	Miscellaneous	-	-	-	328	acres	-	$215,823	$658.80
24-5-08	Black Mesa Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	5,244	feet	-	$241,826	$46.12
24-5-09	Black Mesa Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	123,901	feet	-	$140,762	$1.14
24-5-50	Black Mesa Draglines	Dragline Removal	Disassemble and Remove Dragline	Miscellaneous	-	-	-	-	-	-	$300,000	N/A
				Miscellaneous Subtotal							$7,182,614	
				TOTAL		178,667 hours					$26,075,546	

KAYENTA MINE

Direct Costs by Equipment Type

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-11	J-18	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	1,238	$28.59	845,850	cy	$211.52	$261,889	$0.41
24-3-11	J-19	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	8,316	$28.59	4,337,948	cy	$211.52	$1,758,014	$0.41
24-3-11	J-21 Single Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,656	$28.59	1,385,673	cy	$211.52	$561,883	$0.41
24-3-11	J-21 Double Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,563	$28.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-11	N-11	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,563	$28.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-11	N-14	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	560	$28.59	292,321	cy	$211.52	$118,534	$0.41
24-3-11	N-14E	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	418	$28.59	216,894	cy	$211.52	$88,679	$0.41
24-3-11	N-9	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,874	$28.59	1,499,014	cy	$211.52	$607,842	$0.41
24-3-12	J-18	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,381	$28.59	1,076,416	cy	$211.52	$503,832	$0.47
24-3-12	J-19	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	21,323	$28.59	7,229,913	cy	$211.52	$4,510,293	$0.62
24-3-12	J-21 Single Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	9536	$28.59	2,309,454	cy	$211.52	$2,017,015	$0.87
24-3-12	J-21 Double Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5422	$28.59	2,228,526	cy	$211.52	$1,146,947	$0.51
24-3-12	N-11	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$28.59	2,228,526	cy	$211.52	$1,146,947	$0.51
24-3-12	N-14	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,119	$28.59	467,201	cy	$211.52	$448,303	$0.92
24-3-12	N-14E	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	554	$28.59	227,608	cy	$211.52	$117,244	$0.51
24-3-12	N-9	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	11,605	$28.59	2,498,357	cy	$211.52	$2,454,747	$0.98
24-5-12	Kayenta Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	21	$28.59	6,518	cy	$211.52	$4,517	$0.53
24-5-14	Kayenta Landfarm Areas	Landfarm Removal	Haul Landfarm Material	637E P-P Scraper	$184.93	16	$28.59	3,000	cy	$211.52	$3,416	$1.14
24-5-17	Kayenta Landfarm Areas	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12	$28.59	6,050	cy	$211.52	$2,453	$0.41
24-5-24	Kayenta Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,266	$28.59	591,057	cy	$211.52	$479,341	$0.81
24-5-30	Kayenta Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12,298	$28.59	3,270,554	cy	$211.52	$2,601,377	$0.80
24-5-36	Kayenta Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	6,261	$28.59	1,664,978	cy	$211.52	$1,324,313	$0.80
24-5-46	Kayenta N-11 Coal Handling Facility	Cut/Fill Earthwork	Cut/Fill Earthwork	637E P-P Scraper	$184.93	2,478	$28.59	659,083	cy	$211.52	$524,214	$0.80
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	232	$28.59	-	-	$211.52	$49,115	$49,115
24-5-06	Joint	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	463	$28.59	402,892	cy	$211.52	$98,022	$0.24
24-5-06	Kayenta	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,121	$28.59	1,198,472	cy	$211.52	$448,591	$0.37
24-5-41	Kayenta Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,225	$28.59	857,725	cy	$211.52	$682,229	$0.80
[illegible]	[illegible]	[illegible]	[illegible]	637E P-P Scraper Subtotal	[illegible]	108,940	[illegible]	[illegible]	[illegible]	[illegible]	$23,044,943	[illegible]
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	769D Rear Dump Truck	$80.34	50	$23.84	-	-	$104.28	$5,255	$5,255
24-3-10	J-18	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	114	$23.84	21,150	cy	$104.28	$11,899	$0.56
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	380	$23.84	54,750	cy	$104.28	$39,660	$0.72
24-3-10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	445	$23.84	51,350	cy	$104.28	$46,427	$0.90
24-3-10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	89	$23.84	20,850	cy	$104.28	$9,294	$0.45
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	105	$23.84	24,500	cy	$104.28	$10,921	$0.45
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	25	$23.84	4,550	cy	$104.28	$2,560	$0.56
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	51	$23.84	12,100	cy	$104.28	$5,285	$0.44
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	42	$23.84	20,850	cy	$104.28	$4,422	$0.21
[illegible]	[illegible]	[illegible]	[illegible]	769D Rear Dump Truck Subtotal	[illegible]	902	[illegible]	[illegible]	[illegible]	[illegible]	$135,724	[illegible]
24-3-10	J-18	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	139	$27.67	6,340	feet	$113.01	$15,722	$2.48
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	361	$27.67	16,430	feet	$113.01	$40,743	$2.48
24-3-10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	336	$27.67	15,415	feet	$113.01	$38,226	$2.48
24-3-10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,260	feet	$113.01	$15,524	$2.48
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	104	$27.67	4,750	feet	$113.01	$11,779	$2.48
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,260	feet	$113.01	$15,524	$2.48
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	988F Loader Series II	$85.34	34	$27.67	-	-	$113.01	$3,797	$3,797
[illegible]	[illegible]	[illegible]	[illegible]	988F Loader Series II Subtotal	[illegible]	1,473	[illegible]	[illegible]	[illegible]	[illegible]	$177,718	[illegible]
24-3-03	J-18	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	1,042	$27.67	1,046,088	cy	$249.62	$260,004	$0.25
24-3-03	J-19	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	12,240	$27.67	12,318,350	cy	$249.62	$3,055,370	$0.25
24-3-03	J-21 Single Width	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	3,572	$27.67	3,594,413	cy	$249.62	$891,681	$0.25
24-3-03	J-21 Double Width	Backfill Mine Pits	ze First Two Spoils (Highwall Sl	D11R Dozer	$221.95	0	$27.67	0	cy	$249.62	$0	N/A
24-3-03	N-11	Backfill Mine Pits	ze First Two Spoils (Highwall Sl	D11R Dozer	$221.95	1,945	$27.67	1,258,110	cy	$249.62	$485,496	$0.39
24-3-03	N-14	Backfill Mine Pits	ze First Two Spoils (Highwall Sl	D11R Dozer	$221.95	5,606	$27.67	2,820,740	cy	$249.62	$699,753	$0.25
24-3-03	N-14E	Backfill Mine Pits	ze First Two Spoils (Highwall Sl	D11R Dozer	$221.95	494	$27.67	497,405	cy	$249.62	$123,393	$0.25
24-3-03	N-9	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	884	$27.67	1,012,500	cy	$249.62	$220,640	$0.22
24-3-04	J-18	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,972	$27.67	2,381,300	cy	$249.62	$492,283	$0.21
24-3-04	J-19	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	11,443	$27.67	13,817,220	cy	$249.62	$2,856,414	$0.21
24-3-04	J-21 Single Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	3,475	$27.67	4,195,560	cy	$249.62	$867,342	$0.21
24-3-04	J-21 Double Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,891	$27.67	4,943,110	cy	$249.62	$1,220,809	$0.25
24-3-04	N-11	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	6,668	$27.67	3,774,330	cy	$249.62	$1,664,559	$0.44
24-3-04	N-14	Backfill Mine Pits	Doze First Two Spoils (Spoil Side	D11R Dozer	$221.95	4672	$27.67	2,820,740	cy	$249.62	$583,128	$0.21
24-3-04	N-14E	Backfill Mine Pits	Doze First Two Spoils (Spoil Side	D11R Dozer	$221.95	412	$27.67	497,405	cy	$249.62	$102,828	$0.21
24-3-04	N-9	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,639	$27.67	2,473,670	cy	$249.62	$409,103	$0.17
24-3-05	J-16	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	272	$27.67	493,370	cy	$249.62	$67,996	$0.14
24-3-05	J-19	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	1,542	$27.67	2,790,000	cy	$249.62	$384,929	$0.14
24-3-05	J-21 Single Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	648	$27.67	1,173,330	cy	$249.62	$161,707	$0.14
24-3-05	J-21 Double Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	729	$27.67	883,800	cy	$249.62	$181,865	$0.21
24-3-05	N-11	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	497	$27.67	899,770	cy	$249.62	$124,005	$0.14
24-3-05	N-14	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	132	$27.67	239,260	cy	$249.62	$32,975	$0.14
24-3-05	N-14E	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	286	$27.67	518,810	cy	$249.62	$71,502	$0.14

Table 24-1-5
KAYENTA MINE
Direct Costs by Equipment Type

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-05	N-9	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	489	$27.67	822,330	cy	$249.62	$122,051	$0.15
24-3-06	J-16	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	824	$27.67	711,000	cy	$249.62	$205,778	$0.29
24-3-06	J-19	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	7,898	$27.67	6,812,151	cy	$249.62	$1,971,573	$0.29
24-3-06	J-21 Single Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,041	$27.67	2,623,176	cy	$249.62	$759,200	$0.29
24-3-06	J-21 Double Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-06	N-11	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-06	N-14	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	4,099	$27.67	3,535,600	cy	$249.62	$1,023,273	$0.29
24-3-06	N-14E	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	193	$27.67	166,200	cy	$249.62	$48,102	$0.29
24-3-06	N-9	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-07	J-16	General Grading	General Grading	D11R Dozer	$221.95	2,523	$27.67	230	acres	$249.62	$629,910	$2,738.74
24-3-07	J-19	General Grading	General Grading	D11R Dozer	$221.95	5,354	$27.67	488	acres	$249.62	$1,336,505	$2,738.74
24-3-07	J-21 Single Width	General Grading	General Grading	D11R Dozer	$221.95	2,194	$27.67	200	acres	$249.62	$547,748	$2,738.74
24-3-07	J-21 Double Width	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-07	N-11	General Grading	General Grading	D11R Dozer	$221.95	7,109	$27.67	648	acres	$249.62	$1,774,704	$2,738.74
24-3-07	N-14	General Grading	General Grading	D11R Dozer	$221.95	461	$27.67	42	acres	$249.62	$115,027	$2,738.74
24-3-07	N-14E	General Grading	General Grading	D11R Dozer	$221.95	230	$27.67	21	acres	$249.62	$57,514	$2,738.74
24-3-07	N-9	General Grading	General Grading	D11R Dozer	$221.95	5,464	$27.67	498	acres	$249.62	$1,363,893	$2,738.74
24-4-01	J-16	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,103	$27.67	201	acres	$249.62	$275,265	$1,369.37
24-4-01	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,210	$27.67	403	acres	$249.62	$551,764	$1,369.37
24-4-01	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,363	$27.67	431	acres	$249.62	$589,777	$1,369.37
24-4-01	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,496	$1,369.37
24-4-01	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	189	acres	$249.62	$258,063	$1,369.37
24-4-01	N-14	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,533	$27.67	280	acres	$249.62	$382,784	$1,369.37
24-4-01	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,496	$1,369.37
24-4-01	N-10	General Grading at 50%	General Grading	D11R Dozer	$221.95	112	$27.67	20	acres	$249.62	$27,964	$1,369.37
24-4-01	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	511	$27.67	93	acres	$249.62	$127,586	$1,369.37
24-4-01	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	435	$27.67	79	acres	$249.62	$108,657	$1,369.37
24-4-01	N-7/8	General Grading at 50%	General Grading	D11R Dozer	$221.95	99	$27.67	18	acres	$249.62	$24,649	$1,369.37
24-4-01	N-9	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,223	$27.67	223	acres	$249.62	$305,370	$1,369.37
24-4-05	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	14,805	$27.67	2,699	acres	$249.62	$3,695,788	$1,369.37
24-4-05	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-05	J-16	General Grading at 50%	General Grading	D11R Dozer	$221.95	568	$27.67	103	acres	$249.62	$141,685	$1,369.37
24-4-05	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	8,127	$27.67	1,482	acres	$249.62	$2,028,600	$1,369.37
24-4-05	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,063	$1,369.37
24-4-05	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	488	$27.67	89	acres	$249.62	$121,874	$1,369.37
24-4-05	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$30	$1,369.37
24-4-05	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-5-11	Kayenta Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	20	$27.67	15,972	cy	$249.62	$4,939	$0.31
24-5-16	Kayenta Landfarm Areas	Grade Landfarm Area	Landfarm Grading	D11R Dozer	$221.95	94	$27.67	4,033	cy	$249.62	$23,367	$5.80
24-5-21	Kayenta Permanent Roads	Dozing-In Narrow Road	Doze Roads	D11R Dozer	$221.95	81	$27.67	184,705	cy	$249.62	$20,141	$0.11
24-5-23	Kayenta Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	2,512	$27.67	229	acres	$249.62	$627,099	$2,738.74
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	1,658	$27.67	817,639	cy	$249.62	$413,766	$0.51
24-5-27	Kayenta Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	829	$27.67	817,639	cy	$249.62	$206,883	$0.25
24-5-29	Kayenta Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	13,901	$27.67	1,267	acres	$249.62	$3,469,989	$2,738.74
24-5-03	Joint	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	1,117	$27.67	1,252,285	cy	$249.62	$278,838	$0.22
24-5-03	Kayenta	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	5422	$27.67	3,647,398	cy	$249.62	$1,353,560	$0.37
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	659	$27.67	325,191	cy	$249.62	$164,563	$0.51
24-5-33	Kayenta Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	199	$27.67	325,191	cy	$249.62	$49,731	$0.15
24-5-36	Kayenta Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	7,077	$27.67	645	acres	$249.62	$1,766,508	$2,738.74
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	535	$27.67	384,078	cy	$249.62	$133,624	$0.35
24-5-39	Kayenta Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment Into Basin	D11R Dozer	$221.95	1,228	$27.67	881,112	cy	$249.62	$306,547	$0.35
24-5-44	Kayenta Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	118	$27.67	11	acres	$249.62	$29,578	$2,738.74
24-5-47	Kayenta N-11 Coal Handling Facility	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	982	$27.67	422,785	cy	$249.62	$245,157	$0.58
24-5-05	Joint	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	846	$27.67	947,885	cy	$249.62	$211,058	$0.22
24-5-05	Kayenta	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	4,132	$27.67	2,779,544	cy	$249.62	$1,031,497	$0.37
24-5-40	Kayenta Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	3,646	$27.67	332	acres	$249.62	$910,029	$2,738.74
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	344	$27.67	-	-	$249.62	$85,971	$85,971
[illegible]	[illegible]	[illegible]	[illegible]	D11R Dozer Subtotal	[illegible]	189,270	[illegible]	[illegible]	[illegible]	[illegible]	$45,913,533	[illegible]
24-4-02	J-16	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	143	$27.67	201	acres	$271.53	$38,918	$193.61
24-4-02	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	287	$27.67	403	acres	$271.53	$78,011	$193.61
24-4-02	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	307	$27.67	431	acres	$271.53	$83,388	$193.61
24-4-02	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-02	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	134	$27.67	188	acres	$271.53	$36,488	$193.61
24-4-02	N-14	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	199	$27.67	280	acres	$271.53	$54,120	$193.61
24-4-02	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-02	N-10	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	15	$27.67	20	acres	$271.53	$3,954	$193.61
24-4-02	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	66	$27.67	93	acres	$271.53	$18,039	$193.61
24-4-02	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	57	$27.67	79	acres	$271.53	$15,362	$193.61
24-4-02	N-7/8	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	13	$27.67	18	acres	$271.53	$3,485	$193.61
24-4-02	N-9	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	159	$27.67	223	acres	$271.53	$43,175	$193.61
24-4-08	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	1,924	$27.67	13,062,652	cy	$271.53	$522,529	$0.04

Ta ...1-5
KAYENTA MINE
Direct Costs by Equipment Type

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-4-06	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	0	$27.67	0	cy	$271.53	$0	N/A
24-4-06	J-16	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	74	$27.67	500,780	cy	$271.53	$20,032	$0.04
24-4-06	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	1,056	$27.67	7,170,736	cy	$271.53	$286,842	$0.04
24-4-06	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	134	$27.67	912,117	cy	$271.53	$36,486	$0.04
24-4-06	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	63	$27.67	430,760	cy	$271.53	$17,231	$0.04
24-4-06	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	0.0	$27.67	108	cy	$271.53	$4	$0.04
24-4-06	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	0	$27.67	0	cy	$271.53	$0	N/A
24-5-10	Kayenta Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	5	$27.67	15,972	cy	$271.53	$1,278	$0.08
24-5-15	Kayenta Landfarm Areas	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	4	$27.67	12,100	cy	$271.53	$968	$0.08
24-5-02	Joint	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	2	$27.67	1,925	cy	$274.57	$421	$0.22
24-5-02	Kayenta	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	13	$27.67	9,777	cy	$274.57	$3,559	$0.36
24-5-22	Kayenta Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	163	$27.67	554,116	cy	$271.53	$44,331	$0.08
24-5-28	Kayenta Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	723	$27.67	2,452,916	cy	$271.53	$196,242	$0.08
24-5-34	Kayenta Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	287	$27.67	975,574	cy	$271.53	$78,049	$0.08
24-5-04	Joint	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	168	$27.67	847,885	cy	$271.53	$45,501	$0.05
24-5-04	Kayenta	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	819	$27.67	2,779,544	cy	$271.53	$222,373	$0.08
				D11R Dozer Ripper Equipped Subtotal		3,417					$1,864,497	
24-3-08	J-16	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	78	$26.59	58,580	lineal feet	$85.39	$6,472	$0.11
24-3-08	J-19	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	215	$26.59	166,170	lineal feet	$85.39	$18,358	$0.11
24-3-08	J-21 Single Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	201	$26.59	155,620	lineal feet	$85.39	$17,193	$0.11
24-3-08	J-21 Double Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	67	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-08	N-11	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	168	$26.59	129,920	lineal feet	$85.39	$14,354	$0.11
24-3-08	N-14	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	48	$26.59	37,410	lineal feet	$85.39	$4,133	$0.11
24-3-08	N-14E	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	32	$26.59	24,940	lineal feet	$85.39	$2,755	$0.11
24-3-08	N-9	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	67	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-09	J-16	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	18	$26.59	9,600	lineal feet	$85.39	$1,405	$0.15
24-3-09	J-19	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	28	$26.59	16,900	lineal feet	$85.39	$2,474	$0.15
24-3-09	J-21 Single Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	42	$26.59	24,430	lineal feet	$85.39	$3,578	$0.15
24-3-09	J-21 Double Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	8,000	lineal feet	$85.39	$1,317	$0.15
24-3-09	N-11	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	18	$26.59	11,300	lineal feet	$85.39	$1,854	$0.15
24-3-09	N-14	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	12	$26.59	6,760	lineal feet	$85.39	$992	$0.15
24-3-09	N-14E	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	8	$26.59	4,520	lineal feet	$85.39	$682	$0.15
24-3-09	N-9	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	9,000	lineal feet	$85.39	$1,317	$0.15
24-4-04	Kayenta	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.80	83	$26.59	128,000	lineal feet	$85.39	$7,071	$0.06
24-5-48	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.80	34	$26.59	-	-	$85.39	$2,869	$2,869
				D7R Dozer Subtotal		1,149					$98,094	
24-3-02	J-16	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$198.78	832	-	-	-	-	$680,894	$680,894
24-3-02	J-19	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$198.78	6,009	-	-	-	-	$4,391,342	$4,391,342
24-3-02	J-21 Single Width	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$198.78	1,995	-	-	-	-	$1,455,880	$1,455,880
24-3-02	N-11	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$198.78	0	-	-	-	-	$0	$0
24-3-02	N-9	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$198.78	1,027	-	-	-	-	$750,946	$750,946
24-5-48	Kayenta	On-Site Mobilization	Interior Mobilization Hours	Drilltech D55SP	$198.78	12	$26.59	-	-	$223.37	$2,680	$2,680
				Drilltech D55SP Subtotal		9,875					$7,281,742	
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	628	$27.67	58,089	cy	$116.34	$96,324	$1.63
24-5-48	Kayenta	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$88.67	205	$27.67	-	-	$116.34	$23,873	$23,873
				LS-208H Linkbelt Subtotal		1,033					$120,197	
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	16H Grader	$67.38	14,400	$27.67	-	-	$95.03	$1,368,455	$1,368,455
24-5-48	Kayenta	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.38	17	$27.67	-	-	$95.03	$1,597	$1,597
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	7,200	$21.30	-	-	$58.67	$422,453	$422,453
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	13,200	$21.30	-	-	$145.97	$1,926,837	$1,926,837
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	42,000	$21.30	-	-	$29.33	$1,231,706	$1,231,706
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	7,200	-	-	-	$11.49	$82,710	$82,710
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	4,800	-	-	-	$1.09	$5,232	$5,232
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	4,800	-	-	-	$1.62	$7,764	$7,764
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Diesel Floodlighting	$5.73	64,800	-	-	-	$5.73	$371,434	$371,434
				Support Equipment Subtotal		160,017					$6,225,864	
24-3-13	J-16	Revegetation	Revegetation	Miscellaneous	-	-	-	417	acres	-	$686,799	$1,647.00
24-3-13	J-19	Revegetation	Revegetation	Miscellaneous	-	-	-	2,801	acres	-	$4,612,991	$1,647.00
24-3-13	J-21 Single Width	Revegetation	Revegetation	Miscellaneous	-	-	-	895	acres	-	$1,473,530	$1,647.00
24-3-13	J-21 Double Width	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,894	$1,647.00
24-3-13	N-11	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,894	$1,647.00
24-3-13	N-14	Revegetation	Revegetation	Miscellaneous	-	-	-	189	acres	-	$310,855	$1,647.00
24-3-13	N-14E	Revegetation	Revegetation	Miscellaneous	-	-	-	141	acres	-	$232,560	$1,647.00
24-3-13	N-9	Revegetation	Revegetation	Miscellaneous	-	-	-	968	acres	-	$1,594,058	$1,647.00
24-3-14	J-16	Revegetation	Revegetation of Topsoil Stockpil	Miscellaneous	-	-	-	11	acres	-	$17,294	$1,647.00
24-3-14	J-19	Revegetation	Revegetation of Topsoil Stockpil	Miscellaneous	-	-	-	167	acres	-	$274,555	$1,647.00
24-3-14	J-21Single Width	Revegetation	Revegetation of Topsoil Stockpil	Miscellaneous	-	-	-	157	acres	-	$257,756	$1,647.00
24-3-14	J-21 Double Width	Revegetation	Revegetation of Topsoil Stockpil	Miscellaneous	-	-	-	41	acres	-	$67,362	$1,647.00

Table 24-1-5
KAYENTA MINE
Direct Costs by Equipment Type

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-14	N-11	Revegetation	Revegetation of Topsoil Stockpil	Miscellaneous	-	-	-	40	acres	-	$65,388	$1,647.00
24-3-14	N-14	Revegetation	Revegetation of Topsoil Stockpil	Miscellaneous	-	-	-	15	acres	-	$25,034	$1,647.00
24-3-14	N-14E	Revegetation	Revegetation of Topsoil Stockpil	Miscellaneous	-	-	-	19	acres	-	$30,799	$1,647.00
24-3-14	N-9	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	77	acres	-	$126,984	$1,647.00
24-4-03	J-18	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	201	acres	-	$165,537	$823.50
24-4-03	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	403	acres	-	$331,815	$823.50
24-4-03	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	431	acres	-	$354,675	$823.50
24-4-03	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,164	$823.50
24-4-03	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
24-4-03	N-14	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	280	acres	-	$230,195	$823.50
24-4-03	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,164	$823.50
24-4-03	N-10	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	20	acres	-	$16,817	$823.50
24-4-03	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	93	acres	-	$76,726	$823.50
24-4-03	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	79	acres	-	$65,343	$823.50
24-4-03	N-7/8	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	18	acres	-	$14,823	$823.50
24-4-03	N-9	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	223	acres	-	$183,641	$823.50
24-4-07	J-18	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	103	acres	-	$85,205	$823.50
24-4-07	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	1,482	acres	-	$1,220,062	$823.50
24-4-07	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	2,699	acres	-	$2,222,540	$823.50
24-4-07	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-4-07	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
24-4-07	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	89	acres	-	$73,292	$823.50
24-4-07	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$18	$823.50
24-4-07	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-5-01	Joint	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$197,133	$197,132.82
24-5-01	Kayenta	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$1,469,184	$1,469,183.98
24-5-13	Kayenta Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$5,439	$1,647.00
24-5-18	Kayenta Landfarm Areas	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$4,118	$1,647.00
24-5-02	Joint	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$9,472	$9,472.20
24-5-02	Kayenta	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$80,170	$80,169.76
24-5-25	Kayenta Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	229	acres	-	$377,119	$1,647.00
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	11,170	feet	-	$21,020	$1.88
24-5-31	Kayenta Primary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	1,267	acres	-	$2,086,752	$1,647.00
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	8,960	feet	-	$20,721	$2.88
24-5-37	Kayenta Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	645	acres	-	$1,062,327	$1,647.00
24-5-42	Kayenta Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	332	acres	-	$547,265	$1,647.00
24-5-43	Kayenta Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Concrete Removal/Disposal	Miscellaneous	-	-	-	-	-	-	$12,139	$12,139.35
24-5-44	Kayenta Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	17	acres	-	$27,670	$1,647.00
24-5-45	Kayenta Monitoring Wells	Reclaim Monitoring Wells	Well/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$57,000	$57,000.00
24-5-07	Joint	Revegetation	Revegetation	Miscellaneous	-	-	-	328	acres	-	$323,734	$988.20
24-5-07	Kayenta	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,588,396	$1,647.00
24-5-09	Kayenta Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	88,168	feet	-	$4,065,969	$46.12
24-5-09	Kayenta Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	201,287	feet	-	$228,680	$1.14
24-5-50	Kayenta Draglines and Shovels	Dragline and Shovel Removal	nds and Remove Draglines and	Miscellaneous	-	-	-	-	-	-	$800,000	N/A
[illegible]				[illegible]							$31,011,434	
24-8-01	J-21 Single Width	Phase I Exploration Bond	-	-	-	-	-	-	-	-	$284,100	$284,100.00
				TOTAL		600,133	hours				$116,207,551	

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-11	J-7	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$26.59	0	cy	$211.52	$0	N/A
24-3-11	J-18	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	1,238	$26.59	645,850	cy	$211.52	$261,889	$0.41
24-3-11	J-19	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	8,316	$26.59	4,337,946	cy	$211.52	$1,759,014	$0.41
24-3-11	J-21 Single Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,658	$26.59	1,385,673	cy	$211.52	$561,883	$0.41
24-3-11	J-21 Double Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,563	$26.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-11	N-9	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,874	$26.59	1,499,014	cy	$211.52	$607,842	$0.41
24-3-11	N-11	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,563	$26.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-11	N-14	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	560	$26.59	292,321	cy	$211.52	$118,534	$0.41
24-3-11	N-14E	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	419	$26.59	218,694	cy	$211.52	$88,679	$0.41
24-3-11	N-8	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$26.59	0	cy	$211.52	$0	N/A
24-3-12	J-18	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,381	$26.59	1,076,418	cy	$211.52	$503,832	$0.47
24-3-12	J-19	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	21,323	$26.59	7,229,913	cy	$211.52	$4,510,293	$0.62
24-3-12	J-21 Single Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	9,536	$26.59	2,309,454	cy	$211.52	$2,017,015	$0.87
24-3-12	J-21 Double Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$26.59	2,226,526	cy	$211.52	$1,146,947	$0.51
24-3-12	J-7	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	1,845	$26.59	343,240	cy	$211.52	$347,955	$1.01
24-3-12	N-9	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	11,605	$26.59	2,498,357	cy	$211.52	$2,454,747	$0.98
24-3-12	N-11	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$26.59	2,226,526	cy	$211.52	$1,146,947	$0.51
24-3-12	N-14	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,118	$26.59	457,201	cy	$211.52	$448,303	$0.98
24-3-12	N-14E	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	554	$26.59	227,806	cy	$211.52	$117,244	$0.51
24-3-12	N-8	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	3,782	$26.59	814,279	cy	$211.52	$800,065	$0.98
24-5-12	Black Mesa Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	475	$26.59	189,341	cy	$211.52	$100,400	$0.53
24-5-12	Kayenta Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	21	$26.59	8,518	cy	$211.52	$4,517	$0.53
24-5-14	Kayenta Landfarm Areas	Landfarm Removal	Haul Landfarm Material	637E P-P Scraper	$184.93	16	$26.59	3,000	cy	$211.52	$3,416	$1.14
24-5-17	Kayenta Landfarm Areas	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12	$26.59	6,050	cy	$211.52	$2,453	$0.41
24-5-24	Black Mesa Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	939	$26.59	244,999	cy	$211.52	$198,691	$0.81
24-5-24	Kayenta Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,266	$26.59	591,057	cy	$211.52	$479,341	$0.81
24-5-30	Black Mesa Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,881	$26.59	1,026,676	cy	$211.52	$818,770	$0.80
24-5-30	Kayenta Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12,298	$26.59	3,270,554	cy	$211.52	$2,601,377	$0.80
24-5-36	Black Mesa Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,310	$26.59	935,154	cy	$211.52	$700,081	$0.75
24-5-36	Kayenta Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	6,261	$26.59	1,684,979	cy	$211.52	$1,324,313	$0.80
24-5-48	Kayenta N-11 Coal Handling Facility	Cut/Fill Earthwork	Cut/Fill Earthwork	637E P-P Scraper	$184.93	2,476	$26.59	659,063	cy	$211.52	$524,214	$0.80
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	155	$26.59	-	-	$211.52	$32,743	$32,743
24-5-06	Kayenta	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	232	$26.59	-	-	$211.52	$49,115	$49,119
24-5-06	Black Mesa	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	878	$26.59	496,377	cy	$211.52	$185,785	$0.37
24-5-06	Joint	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	772	$26.59	402,892	cy	$211.52	$163,371	$0.41
24-5-06	Kayenta	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,121	$26.59	1,188,472	cy	$211.52	$448,591	$0.37
24-5-41	Black Mesa Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,150	$26.59	571,617	cy	$211.52	$454,819	$0.80
24-5-41	Kayenta Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,225	$26.59	857,725	cy	$211.52	$682,229	$0.80
[illegible]	[illegible]	[illegible]	[illegible]	637E P-P Scraper	[illegible]	28,454	[illegible]	[illegible]	[illegible]	[illegible]	$26,747,693	[illegible]
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	769D Rear Dump Truck	$80.34	34	$23.94	-	-	$104.28	$3,504	$3,504
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	769D Rear Dump Truck	$80.34	50	$23.94	-	-	$104.28	$5,255	$5,256
24-3-10	J-18	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	114	$23.94	21,150	cy	$104.28	$11,899	$0.56
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	380	$23.94	54,750	cy	$104.28	$39,680	$0.72
24-3-10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	445	$23.94	51,350	cy	$104.28	$46,427	$0.90
24-3-10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	89	$23.94	20,850	cy	$104.28	$9,294	$0.45
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	211	$23.94	29,700	cy	$104.28	$22,048	$0.74
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	42	$23.94	20,850	cy	$104.28	$4,422	$0.21
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	105	$23.94	24,500	cy	$104.28	$10,921	$0.45
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	25	$23.94	4,550	cy	$104.28	$2,560	$0.56
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	51	$23.94	12,100	cy	$104.28	$5,288	$0.44
24-3-10	N-8	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	398	$23.94	59,250	cy	$104.28	$41,322	$0.70
[illegible]	[illegible]	[illegible]	[illegible]	769D Rear Dump Truck	[illegible]	943	[illegible]	[illegible]	[illegible]	[illegible]	$202,507	[illegible]
24-3-10	J-18	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	139	$27.67	6,340	feet	$113.01	$15,722	$2.48
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	361	$27.67	16,430	feet	$113.01	$40,743	$2.48
24-3-10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	338	$27.67	15,415	feet	$113.01	$38,226	$2.48
24-3-10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,260	feet	$113.01	$15,524	$2.48
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	196	$27.67	8,910	feet	$113.01	$22,095	$2.48
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,260	feet	$113.01	$15,524	$2.48
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	104	$27.67	4,750	feet	$113.01	$11,779	$2.48
24-3-10	N-8	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	390	$27.67	17,780	feet	$113.01	$44,091	$2.48
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	988F Loader Series II	$85.34	22	$27.67	-	-	$113.01	$2,531	$2,531
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	988F Loader Series II	$85.34	34	$27.67	-	-	$113.01	$3,797	$3,797
[illegible]	[illegible]	[illegible]	[illegible]	988F Loader Series II	[illegible]	2,161	[illegible]	[illegible]	[illegible]	[illegible]	$248,435	[illegible]
24-3-03	J-18	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	1,042	$27.67	1,048,068	cy	$249.62	$260,004	$0.25
24-3-03	J-19	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	12,240	$27.67	12,316,350	cy	$249.62	$3,055,370	$0.25
24-3-03	J-21 Single Width	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	3,572	$27.67	3,594,413	cy	$249.62	$891,681	$0.25
24-3-03	J-7	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	500	$27.67	788,900	cy	$249.62	$124,834	$0.16
24-3-03	N-9	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	884	$27.67	1,012,500	cy	$249.62	$220,640	$0.22
24-3-03	N-8	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	4,058	$27.67	4,402,238	cy	$249.62	$1,012,946	$0.23
24-3-03	N-11	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	1,945	$27.67	1,258,110	cy	$249.62	$485,486	$0.39
24-3-03	N-14	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	5,808	$27.67	2,620,740	cy	$249.62	$899,753	$0.25
24-3-03	N-14E	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	484	$27.67	497,405	cy	$249.62	$123,393	$0.25
24-3-04	J-18	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,972	$27.67	2,381,300	cy	$249.62	$492,283	$0.21

Table 24-1-5
JOINT MINES
Direct Costs by Equipment Type

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-04	J-19	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	11,443	$27.67	13,817,220	cy	$249.62	$2,856,414	$0.21
24-3-04	J-21 Single Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	3,475	$27.67	4,195,560	cy	$249.62	$867,342	$0.21
24-3-04	J-21 Double Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,891	$27.67	4,943,110	cy	$249.62	$1,220,809	$0.25
24-3-04	J-7	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	747	$27.67	883,140	cy	$249.62	$186,425	$0.22
24-3-04	N-9	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,639	$27.67	2,473,870	cy	$249.62	$409,103	$0.17
24-3-04	N-11	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	5,668	$27.67	3,774,330	cy	$249.62	$1,664,559	$0.44
24-3-04	N-14	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	4,672	$27.67	2,820,740	cy	$249.62	$583,128	$0.21
24-3-04	N-14E	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	412	$27.67	497,405	cy	$249.62	$102,928	$0.21
24-3-04	N-8	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,368	$27.67	3,781,230	cy	$249.62	$1,090,443	$0.29
24-3-05	J-16	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	272	$27.67	493,370	cy	$249.62	$67,998	$0.14
24-3-05	J-19	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	1,542	$27.67	2,793,000	cy	$249.62	$384,928	$0.14
24-3-05	J-21 Single Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	648	$27.67	1,173,330	cy	$249.62	$161,707	$0.14
24-3-05	J-21 Double Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	729	$27.67	883,800	cy	$249.62	$181,895	$0.21
24-3-05	J-7	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	74	$27.67	177,090	cy	$249.62	$18,470	$0.10
24-3-05	N-9	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	489	$27.67	822,330	cy	$249.62	$122,051	$0.15
24-3-05	N-11	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	497	$27.67	899,770	cy	$249.62	$124,005	$0.14
24-3-05	N-14	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	132	$27.67	239,280	cy	$249.62	$32,975	$0.14
24-3-05	N-14E	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	288	$27.67	518,610	cy	$249.62	$71,502	$0.14
24-3-05	N-8	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	567	$27.67	1,026,520	cy	$249.62	$141,474	$0.14
24-3-06	J-16	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	624	$27.67	711,000	cy	$249.62	$205,778	$0.29
24-3-06	J-19	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	7,886	$27.67	6,812,151	cy	$249.62	$1,971,573	$0.29
24-3-06	J-21 Single Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,041	$27.67	2,623,178	cy	$249.62	$759,200	$0.29
24-3-06	J-21 Double Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-06	J-7	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	824	$27.67	797,025	cy	$249.62	$230,875	$0.29
24-3-06	N-9	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	0	$249.62	$240,824	$0.29
24-3-06	N-11	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-06	N-14	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	4,099	$27.67	3,535,600	cy	$249.62	$1,023,273	$0.29
24-3-06	N-14E	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	183	$27.67	158,200	cy	$249.62	$46,102	$0.29
24-3-06	N-8	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,394	$27.67	2,927,742	cy	$249.62	$847,347	$0.29
24-3-07	J-16	General Grading	General Grading	D11R Dozer	$221.95	2,523	$27.67	230	acres	$249.62	$629,910	$2,738.74
24-3-07	J-19	General Grading	General Grading	D11R Dozer	$221.95	5,354	$27.67	488	acres	$249.62	$1,336,505	$2,738.74
24-3-07	J-21 Single Width	General Grading	General Grading	D11R Dozer	$221.95	2,194	$27.67	200	acres	$249.62	$547,748	$2,738.74
24-3-07	J-21 Double Width	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-07	J-7	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-07	N-9	General Grading	General Grading	D11R Dozer	$221.95	5,464	$27.67	498	acres	$249.62	$1,363,693	$2,738.74
24-3-07	N-11	General Grading	General Grading	D11R Dozer	$221.95	7,109	$27.67	648	acres	$249.62	$1,774,784	$2,738.74
24-3-07	N-14	General Grading	General Grading	D11R Dozer	$221.95	461	$27.67	42	acres	$249.62	$115,027	$2,738.74
24-3-07	N-14E	General Grading	General Grading	D11R Dozer	$221.95	230	$27.67	21	acres	$249.62	$57,514	$2,738.74
24-3-07	N-8	General Grading	General Grading	D11R Dozer	$221.95	625	$27.67	57	acres	$249.62	$156,108	$2,738.74
24-4-01	J-1/N-8	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-01	J-16	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,103	$27.67	201	acres	$249.62	$275,265	$1,369.37
24-4-01	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,210	$27.67	403	acres	$249.62	$551,784	$1,369.37
24-4-01	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,363	$27.67	431	acres	$249.62	$589,777	$1,369.37
24-4-01	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,496	$1,369.37
24-4-01	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,063	$1,369.37
24-4-01	N-14	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,533	$27.67	280	acres	$249.62	$382,784	$1,369.37
24-4-01	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,496	$1,369.37
24-4-01	N-10	General Grading at 50%	General Grading	D11R Dozer	$221.95	112	$27.67	20	acres	$249.62	$27,964	$1,369.37
24-4-01	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	511	$27.67	93	acres	$249.62	$127,588	$1,369.37
24-4-01	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	435	$27.67	79	acres	$249.62	$108,857	$1,369.37
24-4-01	N-7/8	General Grading at 50%	General Grading	D11R Dozer	$221.95	99	$27.67	18	acres	$249.62	$24,649	$1,369.37
24-4-01	N-9	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,223	$27.67	223	acres	$249.62	$305,370	$1,369.37
24-4-05	J-16	General Grading at 50%	General Grading	D11R Dozer	$221.95	568	$27.67	103	acres	$249.62	$141,885	$1,369.37
24-4-05	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	8,127	$27.67	1,482	acres	$249.62	$2,026,800	$1,369.37
24-4-05	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,063	$1,369.37
24-4-05	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	489	$27.67	89	acres	$249.62	$121,674	$1,369.37
24-4-05	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$30	$1,369.37
24-4-05	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-05	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	14,805	$27.67	2,699	acres	$249.62	$3,695,766	$1,369.37
24-4-05	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-5-11	Black Mesa Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	528	$27.67	355,014	cy	$249.62	$131,747	$0.37
24-5-11	Kayenta Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	20	$27.67	15,972	cy	$249.62	$4,939	$0.31
24-5-16	Kayenta Landfarm Areas	Grade Landfarm Area	Landfarm Grading	D11R Dozer	$221.95	94	$27.67	4,033	cy	$249.62	$23,387	$5.80
24-5-21	Black Mesa Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	47	$27.67	76,562	cy	$249.62	$11,688	$0.15
24-5-21	Kayenta Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	81	$27.67	184,705	cy	$249.62	$20,141	$0.11
24-5-23	Black Mesa Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	1,041	$27.67	95	acres	$249.62	$259,939	$2,738.74
24-5-23	Kayenta Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	2,512	$27.67	229	acres	$249.62	$627,099	$2,738.74
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	432	$27.67	213,060	cy	$249.62	$107,829	$0.51
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	1,658	$27.67	817,639	cy	$249.62	$413,766	$0.51
24-5-27	Black Mesa Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	204	$27.67	256,718	cy	$249.62	$51,037	$0.20
24-5-27	Kayenta Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	829	$27.67	817,639	cy	$249.62	$206,883	$0.25
24-5-29	Black Mesa Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	4,385	$27.67	398	acres	$249.62	$1,089,494	$2,738.74
24-5-29	Kayenta Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	13,901	$27.67	1,267	acres	$249.62	$3,469,989	$2,738.74
24-5-03	Black Mesa Joint	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	2,214	$27.67	1,489,494	cy	$249.62	$552,756	$0.37
24-5-03	Joint	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	1,862	$27.67	1,252,295	cy	$249.62	$464,731	$0.37

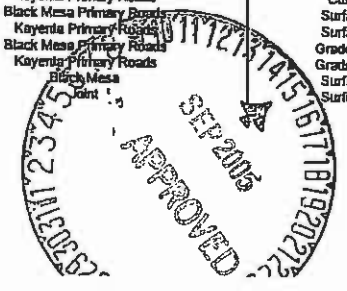
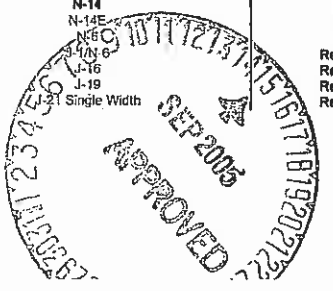


TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-03	Kayenta	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	5,422	$27.67	3,647,398	cy	$249.62	$1,353,560	$0.37
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	370	$27.67	182,647	cy	$249.62	$92,429	$0.51
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	659	$27.67	325,191	cy	$249.62	$164,563	$0.51
24-5-33	Black Mesa Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	102	$27.67	182,647	cy	$249.62	$25,418	$0.14
24-5-33	Kayenta Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	199	$27.67	325,191	cy	$249.62	$49,731	$0.15
24-5-35	Black Mesa Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	3,975	$27.67	382	acres	$249.62	$992,179	$2,738.74
24-5-35	Kayenta Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	7,077	$27.67	645	acres	$249.62	$1,766,508	$2,738.74
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	357	$27.67	256,052	cy	$249.62	$89,083	$0.35
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	535	$27.67	384,078	cy	$249.62	$133,024	$0.35
24-5-39	Black Mesa Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment Into Basin	D11R Dozer	$221.95	819	$27.67	587,408	cy	$249.62	$204,385	$0.35
24-5-39	Kayenta Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment Into Basin	D11R Dozer	$221.95	1,228	$27.67	881,112	cy	$249.62	$306,547	$0.35
24-5-44	Black Mesa Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	79	$27.67	7	acres	$249.62	$19,719	$2,738.74
24-5-44	Kayenta Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	116	$27.67	11	acres	$249.62	$28,578	$2,738.74
24-5-47	Kayenta N-11 Coal Handling Facility	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	982	$27.67	422,795	cy	$249.62	$245,157	$0.58
24-5-05	Black Mesa	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	1,695	$27.67	1,140,304	cy	$249.62	$423,170	$0.37
24-5-05	Joint	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	1,409	$27.67	947,885	cy	$249.62	$351,763	$0.37
24-5-05	Kayenta	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	4,132	$27.67	2,779,544	cy	$249.62	$1,031,497	$0.37
24-5-40	Black Mesa Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	2,430	$27.67	222	acres	$249.62	$606,588	$2,738.74
24-5-40	Kayenta Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	3,648	$27.67	332	acres	$249.62	$910,029	$2,738.74
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	230	$27.67	-	-	$249.62	$57,314	$57,314
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	344	$27.67	-	-	$249.62	$85,971	$85,971
[illegible]	[illegible]	[illegible]	[illegible]	D11R Dozer Subtotal	[illegible]	22,972	[illegible]	[illegible]	[illegible]	[illegible]	$4,813,803	[illegible]
24-4-02	J-1/N-6	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	0	$27.67	0	acres	$271.53	$0	N/A
24-4-02	J-18	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	143	$27.67	201	acres	$271.53	$38,918	$193.61
24-4-02	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	287	$27.67	403	acres	$271.53	$78,011	$193.61
24-4-02	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	307	$27.67	431	acres	$271.53	$83,388	$193.61
24-4-02	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-02	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	134	$27.67	188	acres	$271.53	$36,486	$193.61
24-4-02	N-14	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	199	$27.67	280	acres	$271.53	$54,120	$193.61
24-4-02	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-02	N-10	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	15	$27.67	20	acres	$271.53	$3,954	$193.61
24-4-02	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	66	$27.67	93	acres	$271.53	$18,039	$193.61
24-4-02	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	57	$27.67	79	acres	$271.53	$15,382	$193.61
24-4-02	N-7/8	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	13	$27.67	18	acres	$271.53	$3,485	$193.61
24-4-02	N-9	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	159	$27.67	223	acres	$271.53	$43,175	$193.61
24-4-06	J-18	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	74	$27.67	500,780	cy	$271.53	$20,032	$0.04
24-4-06	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	1,058	$27.67	7,170,736	cy	$271.53	$288,842	$0.04
24-4-06	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	134	$27.67	912,117	cy	$271.53	$36,486	$0.04
24-4-06	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	63	$27.67	430,760	cy	$271.53	$17,231	$0.04
24-4-06	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	0.0	$27.67	106	cy	$271.53	$4	$0.04
24-4-06	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	0	$27.67	0	cy	$271.53	$0	N/A
24-4-06	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	1,924	$27.67	13,082,652	cy	$271.53	$522,529	$0.04
24-4-06	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	0	$27.67	0	cy	$271.53	$0	N/A
24-5-10	Black Mesa Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	105	$27.67	355,014	cy	$271.53	$28,402	$0.08
24-5-10	Kayenta Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	5	$27.67	15,972	cy	$271.53	$1,278	$0.08
24-5-15	Kayenta Landfarm Areas	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	4	$27.67	12,100	cy	$271.53	$968	$0.08
24-5-19	J-3 Airport	Asphalt Removal	Asphalt Removal/Disposal	D11R Dozer - Ripper Equipped	$243.68	27	$27.67	8,088	cy	$271.53	$7,253	$0.80
24-5-02	Black Mesa	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	7	$27.67	5,152	cy	$274.57	$1,878	$0.36
24-5-02	Joint	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	3	$27.67	1,925	cy	$274.57	$701	$0.36
24-5-02	Kayenta	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	13	$27.67	9,777	cy	$274.57	$3,559	$0.36
24-5-20	J-3 Airport	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	27	$27.67	90,656	cy	$271.53	$7,253	$0.08
24-5-22	Black Mesa Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	68	$27.67	229,686	cy	$271.53	$18,378	$0.08
24-5-22	Kayenta Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	163	$27.67	554,118	cy	$271.53	$44,331	$0.08
24-5-28	Black Mesa Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	227	$27.67	770,157	cy	$271.53	$61,615	$0.08
24-5-28	Kayenta Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	723	$27.67	2,452,916	cy	$271.53	$196,242	$0.08
24-5-34	Black Mesa Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	181	$27.67	547,942	cy	$271.53	$43,837	$0.08
24-5-34	Kayenta Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	287	$27.67	975,574	cy	$271.53	$78,049	$0.08
24-5-04	Black Mesa	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	336	$27.67	1,140,304	cy	$271.53	$91,226	$0.08
24-5-04	Joint	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	279	$27.67	947,885	cy	$271.53	$75,834	$0.08
24-5-04	Kayenta	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.68	819	$27.67	2,779,544	cy	$271.53	$222,373	$0.08
[illegible]	[illegible]	[illegible]	[illegible]	D11R Dozer - Ripper Equipped Subtotal	[illegible]	7,914	[illegible]	[illegible]	[illegible]	[illegible]	$2,154,952	[illegible]
24-3-08	J-18	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	76	$26.59	58,580	lineal feet	$85.39	$6,472	$0.11
24-3-08	J-19	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	216	$26.59	166,170	lineal feet	$85.39	$18,358	$0.11
24-3-08	J-21 Single Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	201	$26.59	155,620	lineal feet	$85.39	$17,193	$0.11
24-3-08	J-21 Double Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	67	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-08	J-7	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	98	$26.59	75,400	lineal feet	$85.39	$8,330	$0.11
24-3-08	N-9	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	67	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-08	N-11	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	166	$26.59	129,020	lineal feet	$85.39	$14,354	$0.11
24-3-08	N-14	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	48	$26.59	37,410	lineal feet	$85.39	$4,133	$0.11
24-3-08	N-14E	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	32	$26.59	24,940	lineal feet	$85.39	$2,758	$0.11
24-3-08	N-6	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	239	$26.59	185,020	lineal feet	$85.39	$20,441	$0.11
24-3-09	J-18	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	16	$26.59	9,600	lineal feet	$85.39	$1,405	$0.15
24-3-09	J-19	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	29	$26.59	16,900	lineal feet	$85.39	$2,474	$0.15
24-3-09	J-21 Single Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	42	$26.59	24,430	lineal feet	$85.39	$3,578	$0.15
24-3-09	J-21 Double Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	9,000	lineal feet	$85.39	$1,317	$0.15

Table 24-1-5
JOINT MINES
Direct Costs by Equipment Type

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-09	J-7	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.60	28	$28.59	15,200	lineal feet	$85.39	$2,229	$0.15
24-3-09	N-9	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.60	15	$28.59	9,000	lineal feet	$85.39	$1,317	$0.15
24-3-09	N-11	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.60	19	$28.59	11,300	lineal feet	$85.39	$1,654	$0.15
24-3-09	N-14	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.60	12	$28.59	8,780	lineal feet	$85.39	$992	$0.15
24-3-09	N-14E	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.60	8	$28.59	4,520	lineal feet	$85.39	$882	$0.15
24-3-09	N-8	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.60	49	$28.59	28,800	lineal feet	$85.39	$4,216	$0.15
24-4-04	Black Mesa	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.60	1.9	$28.59	3,000	lineal feet	$85.39	$188	$0.06
24-4-04	Kayenta	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.60	83	$28.59	128,000	lineal feet	$85.39	$7,071	$0.06
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.60	22	$28.59	-	-	$85.39	$1,913	$1,913
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.60	34	$28.59	-	-	$85.39	$2,869	$2,869
[illegible]	[illegible]	[illegible]	[illegible]	D7R Dozer Subtotal	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$133,545	[illegible]
24-3-02	J-16	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	932	-	-	-	-	$680,894	$680,894
24-3-02	J-19	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	6,009	-	-	-	-	$4,391,342	$4,391,342
24-3-02	J-21 Single Width	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	1,995	-	-	-	-	$1,455,880	$1,455,880
24-3-02	J-7	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	317	-	-	-	-	$232,424	$232,424
24-3-02	N-9	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	1,027	-	-	-	-	$750,946	$750,946
24-3-02	N-11	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	0	-	-	-	-	$0	$0
24-3-02	N-8	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	1,928	-	-	-	-	$1,410,110	$1,410,110
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	Drltech D55SP	$198.78	8	$28.59	-	-	$223.37	$1,787	$1,787
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	Drltech D55SP	$198.78	12	$28.59	-	-	$223.37	$2,680	$2,680
[illegible]	[illegible]	[illegible]	[illegible]	Drltech D55SP Subtotal	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$8,926,083	[illegible]
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	552	$27.67	39,393	cy	$116.34	$64,216	$1.63
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	828	$27.67	59,089	cy	$116.34	$96,324	$1.63
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$88.67	137	$27.67	-	-	$116.34	$15,915	$15,915
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$88.67	205	$27.67	-	-	$116.34	$23,873	$23,873
[illegible]	[illegible]	[illegible]	[illegible]	LS-208H Linkbelt Subtotal	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$200,328	[illegible]
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	16H Grader	$67.36	9,600	$27.67	-	-	$95.03	$912,303	$912,303
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	16H Grader	$67.36	14,400	$27.67	-	-	$95.03	$1,368,455	$1,368,455
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.36	11	$27.67	-	-	$95.03	$1,064	$1,064
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.36	17	$27.67	-	-	$95.03	$1,597	$1,597
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	4,800	$21.30	-	-	$58.67	$281,635	$281,635
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	7,200	$21.30	-	-	$58.67	$422,453	$422,453
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	8,800	$21.30	-	-	$145.97	$1,284,556	$1,284,556
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	13,200	$21.30	-	-	$145.97	$1,926,837	$1,926,837
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	28,000	$21.30	-	-	$29.33	$821,137	$821,137
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	42,000	$21.30	-	-	$29.33	$1,231,706	$1,231,706
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	4,800	-	-	-	$11.49	$55,140	$55,140
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	7,200	-	-	-	$11.49	$82,710	$82,710
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	3,200	-	-	-	$1.09	$3,488	$3,488
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	4,800	-	-	-	$1.09	$5,232	$5,232
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.82	3,200	-	-	-	$1.82	$5,178	$5,178
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.82	4,800	-	-	-	$1.82	$7,764	$7,764
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Diesel Floodlighting	$5.73	43,200	-	-	-	$5.73	$247,822	$247,822
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Diesel Floodlighting	$5.73	64,800	-	-	-	$5.73	$371,434	$371,434
SUPPORT EQUIPMENT TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$10,376,446	[illegible]
24-3-13	J-16	Revegetation	Revegetation	Miscellaneous	-	-	-	417	acres	-	$686,799	$1,647.00
24-3-13	J-19	Revegetation	Revegetation	Miscellaneous	-	-	-	2,801	acres	-	$4,612,991	$1,647.00
24-3-13	J-21 Single Width	Revegetation	Revegetation	Miscellaneous	-	-	-	895	acres	-	$1,473,530	$1,647.00
24-3-13	J-21 Double Width	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,894	$1,647.00
24-3-13	J-7	Revegetation	Revegetation	Miscellaneous	-	-	-	213	acres	-	$350,403	$1,647.00
24-3-13	N-9	Revegetation	Revegetation	Miscellaneous	-	-	-	966	acres	-	$1,594,058	$1,647.00
24-3-13	N-11	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,894	$1,647.00
24-3-13	N-14	Revegetation	Revegetation	Miscellaneous	-	-	-	189	acres	-	$310,855	$1,647.00
24-3-13	N-14E	Revegetation	Revegetation	Miscellaneous	-	-	-	141	acres	-	$232,560	$1,647.00
24-3-13	N-8	Revegetation	Revegetation	Miscellaneous	-	-	-	505	acres	-	$831,271	$1,647.00
24-3-14	J-16	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	11	acres	-	$17,294	$1,647.00
24-3-14	J-19	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	167	acres	-	$274,555	$1,647.00
24-3-14	J-21 Single Width	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	157	acres	-	$257,756	$1,647.00
24-3-14	J-21 Double Width	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	41	acres	-	$67,382	$1,647.00
24-3-14	J-7	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	31	acres	-	$50,563	$1,647.00
24-3-14	N-9	Revegetation	Revegetation of Topsoil Stockpiles	Miscellaneous	-	-	-	77	acres	-	$126,984	$1,647.00
24-3-14	N-11	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	40	acres	-	$65,386	$1,647.00
24-3-14	N-14	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	15	acres	-	$25,034	$1,647.00
24-3-14	N-14E	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	19	acres	-	$30,799	$1,647.00
24-3-14	N-8	Revegetation	Revegetation of Topsoil Stockpiles	Miscellaneous	-	-	-	77	acres	-	$126,984	$1,647.00
24-4-03	J-16	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-4-03	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	201	acres	-	$165,537	$823.50
24-4-03	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	403	acres	-	$331,815	$823.50
24-4-03	[illegible]	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	431	acres	-	$354,875	$823.50



JOINT MINES

Direct Costs by Equipment Type

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-4-03	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,164	$823.50
24-4-03	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
24-4-03	N-14	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	280	acres	-	$230,195	$823.50
24-4-03	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,164	$823.50
24-4-03	N-10	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	20	acres	-	$16,617	$823.50
24-4-03	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	93	acres	-	$76,726	$823.50
24-4-03	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	79	acres	-	$65,343	$823.50
24-4-03	N-7/8	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	18	acres	-	$14,823	$823.50
24-4-03	N-9	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	223	acres	-	$183,641	$823.50
24-4-07	J-18	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	103	acres	-	$85,205	$823.50
24-4-07	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	1,482	acres	-	$1,220,062	$823.50
24-4-07	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	2,699	acres	-	$2,222,540	$823.50
24-4-07	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-4-07	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
24-4-07	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	89	acres	-	$73,292	$823.50
24-4-07	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$18	$823.50
24-4-07	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-5-01	Black Mesa	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$2,108,472	$2,108,471.50
24-5-01	Joint	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$328,554	$328,554.38
24-5-01	Kayenta	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$1,469,184	$1,469,183.86
24-5-13	Black Mesa Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	73	acres	-	$120,807	$1,647.00
24-5-13	Kayenta Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$5,435	$1,647.00
24-5-18	Kayenta Landfarm Areas	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$4,118	$1,647.00
24-5-02	Black Mesa	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$42,246	$42,245.67
24-5-02	Joint	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$15,787	$15,787.00
24-5-02	Kayenta	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$80,170	$80,169.76
24-5-25	Black Mesa Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	95	acres	-	$156,320	$1,647.00
24-5-25	Kayenta Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	229	acres	-	$377,119	$1,647.00
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	5,040	feet	-	$14,014	$2.78
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	11,170	feet	-	$21,020	$1.88
24-5-31	Black Mesa Primary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	398	acres	-	$655,190	$1,647.00
24-5-31	Kayenta Primary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	1,267	acres	-	$2,086,752	$1,647.00
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	4,840	foot	-	$13,614	$2.08
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	8,960	feet	-	$20,721	$2.98
24-5-37	Black Mesa Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	362	acres	-	$596,668	$1,647.00
24-5-37	Kayenta Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	645	acres	-	$1,062,327	$1,647.00
24-5-42	Black Mesa Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	222	acres	-	$384,843	$1,647.00
24-5-42	Kayenta Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	332	acres	-	$547,205	$1,647.00
24-5-43	Black Mesa Environmental Monitoring Sites	Off Permit Environmental Monitoring Site	Site Reclamation	Concrete Removal/Disposal	-	-	-	-	-	-	$8,093	$8,092.90
24-5-43	Kayenta Environmental Monitoring Sites	Off Permit Environmental Monitoring Site	Concrete Removal/Disposal	Miscellaneous	-	-	-	-	-	-	$12,139	$12,139.35
24-5-44	Black Mesa Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	11	acres	-	$18,446	$1,647.00
24-5-44	Kayenta Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	17	acres	-	$27,870	$1,647.00
24-5-45	Black Mesa Monitoring Wells	Reclaim Monitoring Wells	Well/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$38,000	$38,000.00
24-5-45	Kayenta Monitoring Wells	Reclaim Monitoring Wells	Well/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$57,000	$57,000.00
24-5-07	Black Mesa	Revegetation	Revegetation	Miscellaneous	-	-	-	398	acres	-	$651,981	$1,647.00
24-5-07	Joint	Revegetation	Revegetation	Miscellaneous	-	-	-	328	acres	-	$539,557	$1,647.00
24-5-07	Kayenta	Revegetation	Revegetation	Miscellaneous	-	-	-	963	acres	-	$1,586,398	$1,647.00
24-5-08	Black Mesa Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	5,244	feet	-	$241,826	$46.12
24-5-08	Kayenta Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	88,166	feet	-	$4,065,869	$46.12
24-5-50	Black Mesa Draglines	Dragline Removal	Disassemble and Remove Draglines	Miscellaneous	-	-	-	-	-	-	$300,000	N/A
24-5-50	Kayenta Draglines and Shovels	Dragline and Shovel Removal	Disassemble and Remove Draglines and Shovels	Miscellaneous	-	-	-	-	-	-	$600,000	N/A
24-5-09	Black Mesa Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	123,901	feet	-	$140,762	$1.14
24-5-09	Kayenta Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	201,287	feet	-	$228,680	$1.14
[redacted]											$38,185,893	
24-6-01	J-21	Phase I Exploration Bond	-	-	-	-	-	-	-	-	$284,100	$284,100.00
				TOTAL		678,601	hours				$142,263,397	

BLACK MESA MINE
Direct Costs by Project Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-02	J-7	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$196.78	317	-	-	-	-	$232,424	$232,424
24-3-02	N-8	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$196.78	1,928	-	-	-	-	$1,410,110	$1,410,110
				Highwall Reduction Subtotal		2,245					$1,642,534	
24-3-03	J-7	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	500	$27.67	788,900	cy	$249.62	$124,934	$0.16
24-3-03	N-8	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	4,058	$27.67	4,402,238	cy	$249.62	[illegible]	$0.23
24-3-04	J-7	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	747	$27.67	863,140	cy	$249.62	$186,425	$0.22
24-3-04	N-8	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,368	$27.67	3,791,230	cy	$249.62	$1,090,443	$0.29
24-3-05	J-7	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	74	$27.67	177,090	cy	$249.62	$18,470	$0.10
24-3-05	N-8	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	567	$27.67	1,026,520	cy	$249.62	$141,474	$0.14
				Backfill Mine Pits Subtotal		10,314					$2,576,431	
24-3-06	J-7	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	924	$27.67	797,025	cy	$249.62	$230,675	$0.29
24-3-06	N-8	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,394	$27.67	2,927,742	cy	$249.62	$847,347	$0.29
				Backfill and Grade Ramps Subtotal		4319					$1,078,022	
24-3-07	J-7	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-07	N-8	General Grading	General Grading	D11R Dozer	$221.95	625	$27.67	57	acres	$249.62	$156,015	$2,737.11
				General Grading Subtotal		625					$156,015	
24-3-08	J-7	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	98	$26.59	75,400	lineal feet	$85.39	$8,330	$0.11
24-3-08	N-8	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	239	$26.59	185,020	lineal feet	$85.39	$20,441	$0.11
24-3-09	J-7	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	26	$26.59	15,200	lineal feet	$85.39	$2,225	$0.15
24-3-09	N-8	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	49	$26.59	28,800	lineal feet	$85.39	$4,216	$0.15
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	211	$23.94	29,700	cy	$104.28	$22,046	$0.74
24-3-10	N-8	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	398	$23.94	59,250	cy	$104.28	$41,322	$0.70
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	198	$27.67	8,910	feet	$113.01	$22,095	$2.48
24-3-10	N-8	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	390	$27.67	17,780	feet	$113.01	$44,091	$2.48
				Surface Stabilization Subtotal		1,606					$164,768	
24-3-11	J-7	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$26.59	0	cy	$211.52	$0	N/A
24-3-11	N-8	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$26.59	0	cy	$211.52	$0	N/A
24-3-12	J-7	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	1645	$26.59	343,240	cy	$211.52	$347,955	$1.01
24-3-12	N-8	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	3,782	$26.59	814,279	cy	$211.52	$800,065	$0.98
				Topsoil/Suitable Material Replacement Subtotal		5,427					$1,148,020	
24-3-13	J-7	Revegetation	Revegetation	Miscellaneous	-	-	-	213	acres	-	$350,403	$1,647.00
24-3-13	N-8	Revegetation	Revegetation	Miscellaneous	-	-	-	505	acres	-	$829,624	$1,642.62
24-3-14	J-7	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	31	acres	-	$50,563	$1,647.00
24-3-14	N-8	Revegetation	Revegetation of Topsoil Stockpiles	Miscellaneous	-	-	-	77	acres	-	$126,684	$1,647.00
				Revegetation Subtotal							$1,357,573	
CATEGORY I TOTAL						24,836					$8,123,385	
24-4-01	J-1/N-8	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
				General Grading at 50% Subtotal		0					$0	
24-4-02	J-1/N-8	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	0	$27.67	0	acres	$271.53	$0	N/A
				Surface Ripping Subtotal		0					$0	
24-4-03	J-1/N-8	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
				Revegetation at 50% Subtotal							$0	
24-4-04	Black Mesa	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.80	1.9	$26.59	3,000	lineal feet	$85.39	$166	$0.06
				Surface Stabilization at 50% Subtotal		2					$166	
CATEGORY II TOTAL						[illegible]					$166	
24-5-01	Black Mesa	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$2,108,472	$2,108,471.50
24-5-01	Joint	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$131,422	$131,421.74
				Facilities Demolition Subtotal							$2,239,893	
24-5-02	Black Mesa	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	7	$27.67	5,152	cy	$274.57	$1,876	$0.36
24-5-02	Joint	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	1	$27.67	1,925	cy	$274.57	$280	$0.15
24-5-02	Black Mesa	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$42,246	$42,246
24-5-02	Joint	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$6,315	$6,315
				Concrete Removal Subtotal		8					$50,716	
24-5-03	Black Mesa	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	2,214	$27.67	1,489,494	cy	$249.62	$552,756	$0.37
24-5-03	Joint	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	745	$27.67	1,252,295	cy	$249.62	$185,892	$0.15
				Surfacing Removal Subtotal		2,959					$738,648	
24-5-04	Black Mesa	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	338	$27.67	1,140,304	cy	$271.53	$91,228	$0.08
24-5-04	Joint	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	112	$27.67	947,885	cy	$271.53	$30,334	$0.03
				Surface Ripping Subtotal		446					$121,562	
24-5-05	Black Mesa	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	1,695	$27.67	1,140,304	cy	$249.62	$423,170	$0.37
24-5-05	Joint	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	564	$27.67	947,885	cy	$249.62	$140,705	$0.15
				Grade Facilities Area Subtotal		2,259					$563,875	
24-5-06	Black Mesa	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	878	$26.59	496,377	cy	$211.52	$185,795	$0.37
24-5-06	Joint	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	309	$26.59	402,892	cy	$211.52	$65,348	$0.16
				Topsoil Replacement Subtotal		1,187					$251,143	
24-5-07	Black Mesa	Revegetation	Revegetation	Miscellaneous	-	-	-	396	acres	-	$651,991	$1,647.00
24-5-07	Joint	Revegetation	Revegetation	Miscellaneous	-	-	-	328	acres	-	$215,823	$656.80
				Revegetation Subtotal							$867,804	
				MAJOR FACILITIES SUBTOTAL		6,891					$4,833,642	

Table 24-1-6
BLACK MESA MINE
Direct Costs by Project Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-08	Black Mesa Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	5,244	feet	-	$241,826	$46.12
				Conveyors Subtotal							$241,826	
24-5-09	Black Mesa Powerlines	Facilities Powerlines	Remove Powerlines	Miscellaneous	-	-	-	123,901	feet	-	$140,762	$1.14
				Powerlines Subtotal							$140,762	
24-5-10	Black Mesa Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	105	$27.67	355,014	cy	$271.53	$28,402	$0.08
24-5-11	Black Mesa Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	526	$27.67	355,014	cy	$249.62	$131,747	$0.37
24-5-12	Black Mesa Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	475	$26.59	189,341	cy	$211.52	$100,400	$0.53
24-5-13	Black Mesa Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	73	acres	-	$120,807	$1,647.00
				Scoria Pits Subtotal		1,107					$381,357	
24-5-19	J-3 Airport	Asphalt Removal	Asphalt Removal/Disposal	D11R Dozer - Ripper Equipped	$243.86	27	$27.67	9,086	cy	$271.53	$7,253	$0.80
24-5-20	J-3 Airport	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	27	$27.67	90,656	cy	$271.53	$7,253	$0.08
				Airport Subtotal		53					$14,506	
24-5-21	Black Mesa Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	47	$27.67	76,562	cy	$249.62	$11,688	$0.15
24-5-22	Black Mesa Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	88	$27.67	229,688	cy	$271.53	$16,376	$0.08
24-5-23	Black Mesa Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	1,041	$27.67	95	acres	$249.62	$259,939	$2,738.74
24-5-24	Black Mesa Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	839	$26.59	244,999	cy	$211.52	$198,691	$0.81
24-5-25	Black Mesa Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	95	acres	-	$156,320	$1,647.00
				Permanent Roads Subtotal		2,095					$645,014	
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	432	$27.67	213,080	cy	$249.62	$107,829	$0.51
24-5-27	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	5,040	feet	-	$14,014	$2.78
24-5-28	Black Mesa Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	204	$27.67	256,719	cy	$249.62	$51,037	$0.20
24-5-29	Black Mesa Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	227	$27.67	770,157	cy	$271.53	$61,615	$0.08
24-5-30	Black Mesa Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	4,366	$27.67	398	acres	$249.62	$1,089,494	$2,738.74
24-5-31	Black Mesa Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,881	$26.59	1,026,878	cy	$211.52	$816,770	$0.80
		Revegetation	Revegetation	Miscellaneous	-	155	-	398	acres	-	$655,190	$1,647.00
				Primary Roads Subtotal		230					$2,795,949	
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	370	$27.67	182,647	cy	$249.62	$92,429	$0.51
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	4,840	feet	-	$13,814	$2.98
24-5-33	Black Mesa Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	102	$27.67	182,647	cy	$249.62	$25,418	$0.14
24-5-34	Black Mesa Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	181	$27.67	547,942	cy	$271.53	$43,837	$0.08
24-5-35	Black Mesa Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	3,975	$27.67	362	acres	$249.62	$992,179	$2,738.74
24-5-36	Black Mesa Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,310	$26.59	835,154	cy	$211.52	$700,081	$0.75
24-5-37	Black Mesa Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	362	acres	-	$596,668	$1,647.00
				Ancillary Roads Subtotal		7,919					$2,464,405	
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	357	$27.67	256,052	cy	$249.62	$89,083	$0.35
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	552	$27.67	39,393	cy	$116.34	$64,218	$1.63
24-5-39	Black Mesa Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment Into Basin	D11R Dozer	$221.95	819	$27.67	587,408	cy	$249.62	$204,365	$0.35
24-5-40	Black Mesa Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	2,430	$27.67	222	acres	$249.62	$606,888	$2,738.74
24-5-41	Black Mesa Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,150	$26.59	571,617	cy	$211.52	$454,819	$0.80
24-5-42	Black Mesa Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	222	acres	-	$364,843	$1,647.00
				Water Storage and Sedimentation Ponds Subtotal		6,309					$1,784,012	
24-5-43	Black Mesa Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Site Reclamation	Concrete Removal/Disposal	-	-	-	-	-	-	$8,093	$8,092.80
24-5-44	Black Mesa Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	79	$27.67	7	acres	$249.62	$18,719	$2,738.74
24-5-44	Black Mesa Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	11	acres	-	$18,446	$1,647.00
				Environmental Monitoring Sites Subtotal		79					$46,258	
24-5-45	Black Mesa Monitoring Wells	Reclaim Monitoring Wells	Well/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$36,000	$36,000
				Monitoring Wells Subtotal							$36,000	
24-5-50	Black Mesa Draglines	Dragline Removal	Disassemble and Remove Draglines	Miscellaneous	-	-	-	-	-	-	$300,000	N/A
				Drag Lines Subtotal							$300,000	
CATEGORY TOTAL				OTHER FACILITIES SUBTOTAL		17,790					$8,652,686	
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	16H Grader	$67.38	9,600	$27.67	-	-	$95.03	$912,303	$912,303
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	4,800	$21.30	-	-	$58.67	$281,635	$281,635
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	8,800	$21.30	-	-	$145.97	$1,284,556	$1,284,556
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	28,000	$21.30	-	-	$29.33	$821,137	$821,137
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	4,800	-	-	-	$11.49	$55,140	$55,140
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	3,200	-	-	-	$1.09	$3,488	$3,488
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	3,200	-	-	-	$1.62	$5,178	$5,178
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Diesel Floodlighting	$5.73	43,200	-	-	-	$5.73	$247,822	$247,822
SUPPORT TOTAL						120,000					$4,169,514	
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	155	$26.59	-	-	$211.52	$32,743	$32,743
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	769D Rear Dump Truck	$80.34	34	$23.94	-	-	$104.28	$3,504	$3,504
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.38	11	$27.67	-	-	$95.03	$1,064	$1,064
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	966F Loader Series II	$85.34	22	$27.67	-	-	$113.01	$2,531	$2,531
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	230	$27.67	-	-	$249.62	$57,314	$57,314
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.80	22	$26.59	-	-	$85.39	$1,913	$1,913

24-1-6
BLACK MESA MINE
Direct Costs by Project Area

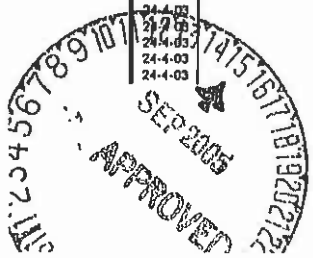
TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	Drltech D55SP	$198.76	8	$26.59	-	-	$223.37	$1,787	$1,787
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$89.67	137	$27.67	-	-	$116.34	$15,915	$15,915
MOBILIZATION TOTAL						619					$17,702	
				TOTAL		189,808 hours					$25,075,546	

Table 24-1-8
KAYENTA MINE
Direct Costs by Project Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-02	J-18	Highwall Reduction	Cast/Blast Highwall	Drillech D55SP	$198.78	932	-	-	-	-	$680,894	$680,894
24-3-02	J-19	Highwall Reduction	Cast/Blast Highwall	Drillech D55SP	$198.78	6,009	-	-	-	-	$4,391,342	$4,391,342
24-3-02	J-21 Single Width	Highwall Reduction	Cast/Blast Highwall	Drillech D55SP	$198.78	1,995	-	-	-	-	$1,455,880	$1,455,880
24-3-02	N-11	Highwall Reduction	Cast/Blast Highwall	Drillech D55SP	$198.78	0	-	-	-	-	$0	$0
24-3-02	N-9	Highwall Reduction	Cast/Blast Highwall	Drillech D55SP	$198.78	1,027	-	-	-	-	$750,948	$750,948
				Highwall Reduction Subtotal		9,963					$7,279,061	
24-3-03	J-18	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	1,042	$27.67	1,048,088	cy	$249.62	$260,004	$0.25
24-3-03	J-19	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	12,240	$27.67	12,310,350	cy	$249.62	$3,055,370	$0.25
24-3-03	J-21 Single Width	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	3,572	$27.67	3,584,413	cy	$249.62	$891,881	$0.25
24-3-03	N-9	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	884	$27.67	1,012,500	cy	$249.62	$220,640	$0.22
24-3-03	N-11	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	1945	$27.67	1,258,110	cy	$249.62	$485,498	$0.38
24-3-03	N-14	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	5,508	$27.67	2,820,740	cy	$249.62	$899,753	$0.25
24-3-03	N-14E	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	494	$27.67	497,405	cy	$249.62	$123,393	$0.25
24-3-04	J-18	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,972	$27.67	2,381,300	cy	$249.62	$492,283	$0.21
24-3-04	J-19	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	11,443	$27.67	13,817,220	cy	$249.62	$2,856,414	$0.21
24-3-04	J-21 Single Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	3,475	$27.67	4,195,580	cy	$249.62	$867,342	$0.21
24-3-04	J-21 Double Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,891	$27.67	4,943,110	cy	$249.62	$1,220,809	$0.25
24-3-04	N-11	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	8,888	$27.67	3,774,330	cy	$249.62	$1,884,559	$0.44
24-3-04	N-14	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	4,572	$27.67	2,820,740	cy	$249.62	$583,128	$0.21
24-3-04	N-14E	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	412	$27.67	497,405	cy	$249.62	$102,826	$0.21
24-3-04	N-9	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,639	$27.67	2,473,670	cy	$249.62	$409,103	$0.17
24-3-05	J-18	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	272	$27.67	483,370	cy	$249.62	$67,996	$0.14
24-3-05	J-19	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	1,542	$27.67	2,793,000	cy	$249.62	$384,929	$0.14
24-3-05	J-21 Single Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	648	$27.67	1,173,330	cy	$249.62	$161,707	$0.14
24-3-05	J-21 Double Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	729	$27.67	883,800	cy	$249.62	$181,995	$0.21
24-3-05	N-11	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	497	$27.67	899,770	cy	$249.62	$124,005	$0.14
24-3-05	N-14	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	132	$27.67	239,260	cy	$249.62	$32,975	$0.14
24-3-05	N-14E	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	288	$27.67	518,610	cy	$249.62	$71,502	$0.14
24-3-05	N-9	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	489	$27.67	822,330	cy	$249.62	$122,051	$0.15
				Backfill Mine Pits Subtotal		65,549					$15,079,881	
24-3-06	J-18	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	824	$27.67	711,000	cy	$249.62	$205,778	$0.29
24-3-06	J-19	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	7,899	$27.67	6,812,151	cy	$249.62	$1,971,573	$0.29
24-3-06	J-21Single Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,041	$27.67	2,623,178	cy	$249.62	$759,200	$0.29
24-3-06	J-21 Double Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-06	N-11	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-06	N-14	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	4,099	$27.67	3,535,600	cy	$249.62	$1,023,273	$0.29
24-3-06	N-14E	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	193	$27.67	166,200	cy	$249.62	$48,102	$0.29
24-3-06	N-9	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
				Backfill and Grade Ramps Subtotal		18,850					$4,730,397	
24-3-07	J-18	General Grading	General Grading	D11R Dozer	$221.95	2,523	$27.67	230	acres	$249.62	$629,910	$2,738.74
24-3-07	J-19	General Grading	General Grading	D11R Dozer	$221.95	5,354	$27.67	488	acres	$249.62	$1,336,505	$2,738.74
24-3-07	J-21 Single Width	General Grading	General Grading	D11R Dozer	$221.95	2,194	$27.67	200	acres	$249.62	$547,748	$2,738.74
24-3-07	J-21 Double Width	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-07	N-11	General Grading	General Grading	D11R Dozer	$221.95	7,109	$27.67	648	acres	$249.62	$1,774,704	$2,738.74
24-3-07	N-14	General Grading	General Grading	D11R Dozer	$221.95	461	$27.67	42	acres	$249.62	$115,027	$2,738.74
24-3-07	N-14E	General Grading	General Grading	D11R Dozer	$221.95	230	$27.67	21	acres	$249.62	$57,514	$2,738.74
24-3-07	N-9	General Grading	General Grading	D11R Dozer	$221.95	5,464	$27.67	498	acres	$249.62	$1,363,693	$2,738.74
				General Grading Subtotal		23,336					$5,825,301	
24-3-08	J-18	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	76	$26.59	58,560	lineal feet	$85.39	$6,472	$0.11
24-3-08	J-19	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	215	$26.59	166,170	lineal feet	$85.39	$18,358	$0.11
24-3-08	J-21 Single Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	201	$26.59	155,820	lineal feet	$85.39	$17,193	$0.11
24-3-08	J-21 Double Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	67	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-08	N-11	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	168	$26.59	129,920	lineal feet	$85.39	$14,354	$0.11
24-3-08	N-14	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	48	$26.59	37,410	lineal feet	$85.39	$4,133	$0.11
24-3-08	N-14E	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	32	$26.59	24,940	lineal feet	$85.39	$2,755	$0.11
24-3-08	N-9	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	67	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-09	J-18	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	16	$26.59	9,600	lineal feet	$85.39	$1,405	$0.15
24-3-09	J-19	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	29	$26.59	18,900	lineal feet	$85.39	$2,474	$0.15
24-3-09	J-21 Single Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	42	$26.59	24,430	lineal feet	$85.39	$3,576	$0.15
24-3-09	J-21 Double Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	9,000	lineal feet	$85.39	$1,317	$0.00
24-3-09	N-11	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	19	$26.59	11,300	lineal feet	$85.39	$1,654	$0.15
24-3-09	N-14	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	12	$26.59	8,760	lineal feet	$85.39	$992	$0.15
24-3-09	N-14E	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	6	$26.59	4,520	lineal feet	$85.39	$662	$0.15
24-3-09	N-9	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	9,000	lineal feet	$85.39	$1,317	$0.15
24-3-10	J-18	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	114	$23.94	21,150	cy	$104.28	$11,899	$0.56
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	380	$23.94	54,750	cy	$104.28	$39,660	$0.72
24-3-10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	445	$23.94	51,350	cy	$104.28	$46,427	$0 90
24-3-10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	89	$23.94	20,850	cy	$104.28	$9,294	$0.45
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	108	$23.94	24,500	cy	$104.28	$10,921	$0.45
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	25	$23.94	4,550	cy	$104.28	$2,560	$0.56
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	51	$23.94	12,100	cy	$104.28	$5,285	$0.44
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	42	$23.94	20,850	cy	$104.28	$4,422	$0.21
24-3-10	J-16	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	139	$27.67	8,340	feet	$113.01	$15,722	$2.48
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	381	$27.67	16,430	feet	$113.01	$40,743	$2.48
24-3-10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	338	$27.67	15,415	feet	$113.01	$38,226	$2.48

KAYENTA MINE
Direct Costs by Project Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,200	feet	$113.01	$15,524	$2.48
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	104	$27.67	4,750	feet	$113.01	$11,779	$2.48
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,200	feet	$113.01	$15,524	$2.48
				Surface Stabilization Subtotal		3,623					$392,943	
24-3-11	J-18	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	1,236	$26.59	645,650	cy	$211.52	$261,869	$0.41
24-3-11	J-19	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	8,316	$26.59	4,337,948	cy	$211.52	$1,758,014	$0.41
24-3-11	J-21 Single Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,656	$26.59	1,385,873	cy	$211.52	$561,863	$0.41
24-3-11	J-21 Double Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,563	$26.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-11	N-11	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,563	$26.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-11	N-14	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	560	$26.59	292,321	cy	$211.52	$118,534	$0.41
24-3-11	N-14E	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	419	$26.59	218,594	cy	$211.52	$88,679	$0.41
24-3-11	N-9	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,874	$26.59	1,499,014	cy	$211.52	$607,842	$0.41
24-3-12	J-18	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,381	$26.59	1,076,416	cy	$211.52	$503,632	$0.47
24-3-12	J-19	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	21,323	$26.59	7,229,913	cy	$211.52	$4,510,293	$0.62
24-3-12	J-21 Single Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	9,536	$26.59	2,309,454	cy	$211.52	$2,017,015	$0.87
24-3-12	J-21 Double Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$26.59	2,228,526	cy	$211.52	$1,146,847	$0.51
24-3-12	N-11	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$26.59	2,228,526	cy	$211.52	$1,146,847	$0.51
24-3-12	N-14	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,119	$26.59	487,201	cy	$211.52	$448,303	$0.92
24-3-12	N-14E	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	554	$26.59	227,806	cy	$211.52	$117,244	$0.51
24-3-12	N-9	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	11,605	$26.59	2,498,357	cy	$211.52	$2,454,747	$0.98
				Topsoil/Suitable Material Replacement Subtotal		79,554					$16,827,356	
24-3-13	J-18	Revegetation	Revegetation	Miscellaneous	-	-	-	417	acres	-	$686,799	$1,647.00
24-3-13	J-19	Revegetation	Revegetation	Miscellaneous	-	-	-	2,801	acres	-	$4,612,991	$1,647.00
24-3-13	J-21 Single Width	Revegetation	Revegetation	Miscellaneous	-	-	-	895	acres	-	$1,473,530	$1,647.00
24-3-13	J-21 Double Width	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,894	$1,647.00
24-3-13	N-11	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,894	$1,647.00
24-3-13	N-14	Revegetation	Revegetation	Miscellaneous	-	-	-	188	acres	-	$310,655	$1,647.00
24-3-13	N-14E	Revegetation	Revegetation	Miscellaneous	-	-	-	141	acres	-	$232,560	$1,647.00
24-3-13	N-9	Revegetation	Revegetation	Miscellaneous	-	-	-	968	acres	-	$1,594,058	$1,647.00
24-3-14	J-16	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	11	acres	-	$17,294	$1,647.00
24-3-14	J-19	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	167	acres	-	$274,555	$1,647.00
24-3-14	J-21 Single Width	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	157	acres	-	$257,758	$1,647.00
24-3-14	J-21 Double Width	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	41	acres	-	$67,382	$1,647.00
24-3-14	N-11	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	40	acres	-	$65,386	$1,647.00
24-3-14	N-14	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	15	acres	-	$25,034	$1,647.00
24-3-14	N-14E	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	19	acres	-	$30,709	$1,647.00
24-3-14	N-9	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	77	acres	-	$126,864	$1,647.00
				Revegetation Subtotal							$12,619,749	
CATEGORY TOTAL											$29,447,048	
24-4-01	J-16	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,103	$27.67	201	acres	$249.62	$275,265	$1,369.37
24-4-01	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,210	$27.67	403	acres	$249.62	$551,784	$1,369.37
24-4-01	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,383	$27.67	431	acres	$249.62	$589,777	$1,369.37
24-4-01	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,496	$1,369.37
24-4-01	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,063	$1,369.37
24-4-01	N-14	General Grading at 50%	General Grading	D11R Dozer	$221.95	1533	$27.67	280	acres	$249.62	$382,784	$1,369.37
24-4-01	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,496	$1,369.37
24-4-01	N-10	General Grading at 50%	General Grading	D11R Dozer	$221.95	112	$27.67	20	acres	$249.62	$27,964	$1,369.37
24-4-01	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	511	$27.67	93	acres	$249.62	$127,566	$1,369.37
24-4-01	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	435	$27.67	79	acres	$249.62	$108,657	$1,369.37
24-4-01	N-7/8	General Grading at 50%	General Grading	D11R Dozer	$221.95	99	$27.67	18	acres	$249.62	$24,649	$1,369.37
24-4-01	N-9	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,223	$27.67	223	acres	$249.62	$305,370	$1,369.37
				General Grading at 50% Subtotal		11,012					$2,748,871	
24-4-02	J-16	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	143	$27.67	201	acres	$271.53	$38,918	$193.61
24-4-02	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	287	$27.67	403	acres	$271.53	$78,011	$193.61
24-4-02	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	307	$27.67	431	acres	$271.53	$83,386	$193.61
24-4-02	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-02	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	134	$27.67	188	acres	$271.53	$36,486	$193.61
24-4-02	N-14	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	199	$27.67	280	acres	$271.53	$54,120	$193.61
24-4-02	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-02	N-10	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	15	$27.67	20	acres	$271.53	$3,954	$193.61
24-4-02	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	66	$27.67	93	acres	$271.53	$18,039	$193.61
24-4-02	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	57	$27.67	79	acres	$271.53	$15,302	$193.61
24-4-02	N-7/8	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	13	$27.67	18	acres	$271.53	$3,485	$193.61
24-4-02	N-9	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	159	$27.67	223	acres	$271.53	$43,175	$193.61
				Surface Ripping Subtotal		1,431					$388,650	
24-4-03	J-16	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	201	acres	-	$165,537	$823.50
24-4-03	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	403	acres	-	$331,815	$823.50
24-4-03	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	431	acres	-	$354,875	$823.50
24-4-03	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$28,184	$823.50
24-4-03	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
24-4-03	N-14	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	280	acres	-	$230,195	$823.50
24-4-03	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$28,184	$823.50
24-4-03	N-10	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	20	acres	-	$16,817	$823.50



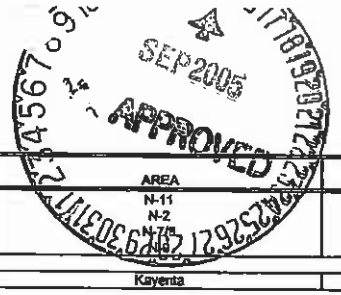


Table 24-1-6
KAYENTA MINE
Direct Costs by Project Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-4-03	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	93	acres	-	$76,726	$823.50
24-4-03	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	79	acres	-	$65,343	$823.50
24-4-03	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	18	acres	-	$14,823	$823.50
24-4-03	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	223	acres	-	$183,641	$823.50
				Revegetation at 50% Subtotal							$1,853,092	
24-4-04	Kayenta	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$56.80	83	$26.59	128,000	lineal feet	$85.39	$7,071	$0.06
				Surface Stabilization at 50% Subtotal		83					$7,071	
CATEGORY II TOTAL											$1,787,883	
24-4-05	J-18	General Grading at 50%	General Grading	D11R Dozer	$221.95	568	$27.67	103	acres	$249.62	$141,885	$1,369.37
24-4-05	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	8,127	$27.67	1,462	acres	$249.62	$2,028,800	$1,369.37
24-4-05	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$256,063	$1,369.37
24-4-05	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	488	$27.67	89	acres	$249.62	$121,874	$1,369.37
24-4-05	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$30	$1,369.37
24-4-05	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-05	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-05	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	14,805	$27.67	2,699	acres	$249.62	$3,695,786	$1,369.37
				General Grading at 50% Subtotal		25,023					$6,248,238	
24-4-06	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	1,924	$27.67	13,062,852	cy	$271.53	$522,529	$0.04
24-4-06	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	0	$27.67	0	cy	$271.53	$0	N/A
24-4-06	J-18	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	74	$27.67	500,780	cy	$271.53	$20,032	$0.04
24-4-06	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	1,056	$27.67	7,170,736	cy	$271.53	$286,842	$0.04
24-4-06	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	134	$27.67	912,117	cy	$271.53	$36,488	$0.04
24-4-06	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	63	$27.67	430,760	cy	$271.53	$17,231	$0.04
24-4-06	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	0.0	$27.67	106	cy	$271.53	$4	$0.04
24-4-06	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	0	$27.67	0	cy	$271.53	$0	N/A
				Surface Ripping Subtotal		3,252					$883,125	
24-4-07	J-18	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	103	acres	-	$85,205	$823.50
24-4-07	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	1,482	acres	-	$1,220,082	$823.50
24-4-07	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	2,699	acres	-	$2,222,540	$823.50
24-4-07	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-4-07	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
24-4-07	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	89	acres	-	$73,292	$823.50
24-4-07	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$16	$823.50
24-4-07	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
				Revegetation at 50% Subtotal							$3,756,309	
CATEGORY III TOTAL											$10,885,672	
24-5-01	Joint	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$197,133	$197,132.62
24-5-01	Kayenta	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$1,469,164	$1,469,163.96
				Facilities Demolition Subtotal							$1,666,297	
24-5-02	Joint	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	2	$27.67	1,525	cy	$274.57	$421	$0.22
24-5-02	Kayenta	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	13	$27.67	9,777	cy	$274.57	$3,558	$0.36
24-5-02	Joint	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$9,472	$9,472
24-5-02	Kayenta	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$80,170	$80,170
				Concrete Removal Subtotal		14					$93,622	
24-5-03	Joint	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	1,117	$27.67	1,292,295	cy	$249.62	$278,838	$0.22
24-5-03	Kayenta	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	5,422	$27.67	3,647,398	cy	$249.62	$1,353,560	$0.37
				Surfacing Removal Subtotal		6,539					$1,632,398	
24-5-04	Joint	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	188	$27.67	947,885	cy	$271.53	$45,501	$0.05
24-5-04	Kayenta	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	819	$27.67	2,779,544	cy	$271.53	$222,373	$0.08
				Surface Ripping Subtotal		987					$267,874	
24-5-05	Joint	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	846	$27.67	947,885	cy	$249.62	$211,058	$0.22
24-5-05	Kayenta	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	4,132	$27.67	2,779,544	cy	$249.62	$1,031,497	$0.37
				Grade Facilities Area Subtotal		4,978					$1,242,555	
24-5-06	Joint	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	463	$26.59	402,892	cy	$211.52	$98,022	$0.24
24-5-06	Kayenta	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,121	$26.59	1,198,472	cy	$211.52	$446,591	$0.37
				Topsoil Replacement Subtotal		2,584					$544,614	
24-5-07	Joint	Revegetation	Revegetation	Miscellaneous	-	-	-	328	acres	-	$323,734	$988.20
24-5-07	Kayenta	Revegetation	Revegetation	Miscellaneous	-	-	-	983	acres	-	$1,586,396	$1,647.00
				Revegetation Subtotal							$1,910,130	
				MAJOR FACILITIES SUBTOTAL		15,102					$7,359,489	
24-5-08	Kayenta Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	88,168	feet	-	$4,085,869	$46.12
				Conveyors Subtotal							$4,085,869	
24-5-09	Kayenta Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	201,267	feet	-	$228,680	$1.14
				Powerlines Subtotal							$228,680	
24-5-10	Kayenta Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	5	$27.67	15,972	cy	$271.53	$1,278	$0.08
24-5-11	Kayenta Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	20	$27.67	15,972	cy	$249.62	$4,939	$0.31
24-5-12	Kayenta Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	21	$26.59	6,516	cy	$211.52	$4,517	$0.53
24-5-13	Kayenta Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$5,435	$1,647.00
				Scoria Pits Subtotal		46					$16,169	
24-5-14	Kayenta Landfarm Areas	Landfarm Removal	Haul Landfarm Material	637E P-P Scraper	$184.93	16	$26.59	3,000	cy	$211.52	$3,416	$1.14
24-5-15	Kayenta Landfarm Areas	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	4	$27.67	12,100	cy	$271.53	$968	$0.08
24-5-16	Kayenta Landfarm Areas	Grade Landfarm Area	Landfarm Grading	D11R Dozer	$221.95	94	$27.67	4,033	cy	$249.62	$23,387	$5.80
24-5-17	Kayenta Landfarm Areas	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12	$26.59	6,050	cy	$211.52	$2,453	$0.41
24-5-18	Kayenta Landfarm Areas	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$4,118	$1,647.00
				Landfarm Areas Subtotal		125					$34,342	

KAYENTA MINE
Direct Costs by Project Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-21	Kayenta Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	81	$27.67	184,705	cy	$249.62	$20,141	$0.11
24-5-22	Kayenta Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	163	$27.67	554,110	cy	$271.53	$44,331	$0.08
24-5-23	Kayenta Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	2,512	$27.67	229	acres	$249.62	$627,099	$2,738.74
24-5-24	Kayenta Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,266	$26.59	591,057	cy	$211.52	$479,341	$0.81
24-5-25	Kayenta Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	229	acres	-	$377,119	$1,647.00
				Permanent Roads Subtotal		5,022					$1,548,031	
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	1,858	$27.67	817,639	cy	$249.62	$413,766	$0.51
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	11,170	feet	-	$21,020	$1.88
24-5-27	Kayenta Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	829	$27.67	817,639	cy	$249.62	$206,883	$0.25
24-5-28	Kayenta Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	723	$27.67	2,452,916	cy	$271.53	$196,242	$0.08
24-5-29	Kayenta Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	13,901	$27.67	1,267	acres	$249.62	$3,469,989	$2,738.74
24-5-30	Kayenta Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12,298	$26.59	3,270,554	cy	$211.52	$2,601,377	$0.80
24-5-31	Kayenta Primary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	1,267	acres	-	$2,086,752	$1,647.00
				Primary Roads Subtotal		29,408					$8,996,029	
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	859	$27.67	325,191	cy	$249.62	$164,583	$0.51
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	6,990	feet	-	$20,721	$2.96
24-5-33	Kayenta Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	199	$27.67	325,191	cy	$249.62	$49,731	$0.15
24-5-34	Kayenta Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	287	$27.67	975,574	cy	$271.53	$78,049	$0.08
24-5-35	Kayenta Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	7,077	$27.67	845	acres	$249.62	$1,766,508	$2,738.74
24-5-36	Kayenta Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	6,261	$26.59	1,664,879	cy	$211.52	$1,324,313	$0.80
24-5-37	Kayenta Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	845	acres	-	$1,082,327	$1,647.00
				Ancillary Roads Subtotal		14,483					$4,466,212	
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	535	$27.67	384,078	cy	$249.62	$133,624	$0.35
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$66.67	528	$27.67	59,069	cy	$116.34	$96,324	$1.63
24-5-39	Kayenta Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment Into Basin	D11R Dozer	$221.95	1,228	$27.67	881,112	cy	$249.62	$306,547	$0.35
24-5-40	Kayenta Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	3,646	$27.67	332	acres	$249.62	$910,029	$2,738.74
24-5-41	Kayenta Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,225	$26.59	857,725	cy	$211.52	$682,229	$0.80
24-5-42	Kayenta Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	332	acres	-	$547,265	$1,647.00
				Water Storage and Sedimentation Ponds Subtotal		9,462					$2,676,018	
24-5-43	Kayenta Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Concrete Removal/Disposal	Miscellaneous	-	-	-	-	-	-	$12,150	$12,139.30
24-5-44	Kayenta Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	116	$27.67	11	acres	$249.62	$29,578	$2,738.74
24-5-44	Kayenta Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	17	acres	-	$27,670	$1,647.00
				Environmental Monitoring Sites Subtotal		116					$69,397	
24-5-45	Kayenta Monitoring Wells	Reclaim Monitoring Wells	Well Site Reclamation	Miscellaneous	-	-	-	-	-	-	$57,000	$57,000
				Monitoring Wells Subtotal							$57,000	
24-5-46	Kayenta N-11 Coal Handling Facility	Cut/Fill Earthwork	Cut/Fill Earthwork	637E P-P Scraper	$184.93	2,478	$26.59	659,063	cy	$211.52	$524,214	$0.80
24-5-47	Kayenta N-11 Coal Handling Facility	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	982	$27.67	422,795	cy	$249.62	$245,157	$0.58
				N-11 Coal Handling Facility Subtotal		3,460					$769,371	
24-5-50	Kayenta Draglines and Shovels	Dragline and Shovel Removal	Disassemble and Remove Draglines and Shovels	Miscellaneous	-	-	-	-	-	-	$500,000	N/A
				Kayenta Drag Lines and Shovels Subtotal		-					$500,000	
				OTHER FACILITIES SUBTOTAL		62,126					$22,727,209	
CATEGORY V TOTAL						77,229					$31,000,000	
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	16H Grader	$87.36	14,400	$27.67	-	-	$95.03	$1,368,455	$1,368,455
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	7,200	$21.30	-	-	$58.67	$422,453	$422,453
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Water Truck	$124.07	13,200	$21.30	-	-	$145.37	$1,926,837	$1,926,837
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	7,200	$21.30	-	-	$37.39	$268,227	$268,227
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	7,200	$21.30	-	-	$37.39	$268,227	$268,227
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	42,000	$21.30	-	-	$29.33	$1,231,706	$1,231,706
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	7,200	$21.30	-	-	$37.39	$268,227	$268,227
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	7,200	-	-	-	$11.49	$82,710	$82,710
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.00	4,800	-	-	-	$1.09	$5,232	$5,232
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	4,800	-	-	-	$1.62	$7,764	$7,764
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Diesel Floodlighting	$5.73	64,800	-	-	-	$5.73	$371,434	$371,434
SUPPORT EQUIPMENT TOTAL						160,000					$5,224,271	
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	222	$26.59	-	-	$211.52	$49,115	$49,115
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	769D Rear Dump Truck	$80.34	50	$23.84	-	-	$104.26	$5,255	$5,255
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	988F Loader Series II	$85.34	34	$27.67	-	-	$113.01	$3,797	$3,797
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.36	17	$27.67	-	-	$95.03	$1,597	$1,597
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	344	$27.67	-	-	$249.62	$85,971	$85,971
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.80	34	$26.59	-	-	$85.39	$2,869	$2,869
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	Driltech D55SP	$198.78	12	$26.59	-	-	$223.37	$2,680	$2,680
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$66.67	205	$27.67	-	-	$116.34	$23,873	$23,873
MOBILIZATION TOTAL						918					$175,157	
24-6-01	J-21 Single Width	Phase I Exploration Bond	-	-	-	-	-	-	-	-	$284,100	$284,100.00
				TOTAL		500,133 hours					$118,207,851	

Table 24-1-6
JOINT MINES
Direct Costs by Project Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-02	J-18	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$186.78	832	-	-	-	-	$680,894	$680,894
24-3-02	J-19	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$186.78	6,009	-	-	-	-	$4,391,342	$4,391,342
24-3-02	J-21 Single Width	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$186.78	1,995	-	-	-	-	$1,455,860	$1,455,860
24-3-02	J-7	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$186.78	317	-	-	-	-	$232,424	$232,424
24-3-02	N-9	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$186.78	1,027	-	-	-	-	$750,948	$750,948
24-3-02	N-11	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$186.78	0	-	-	-	-	$0	$0
24-3-02	N-8	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$186.78	1,026	-	-	-	-	$1,410,110	$1,410,110
				Highwall Reduction Subtotal		12,206					$8,821,595	
24-3-03	J-18	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	1,042	$27.67	1,048,068	cy	$249.62	$260,004	$0.25
24-3-03	J-19	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	12,240	$27.67	12,316,350	cy	$249.62	$3,055,370	$0.25
24-3-03	J-21 Single Width	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	3,572	$27.67	3,594,413	cy	$249.62	$891,661	$0.25
24-3-03	J-7	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	500	$27.67	786,900	cy	$249.62	$124,934	$0.16
24-3-03	N-9	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	884	$27.67	1,012,500	cy	$249.62	$220,640	$0.22
24-3-03	N-11	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	1,945	$27.67	1,258,110	cy	$249.62	$485,499	$0.39
24-3-03	N-14	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	5,806	$27.67	2,820,740	cy	$249.62	$699,753	$0.25
24-3-03	N-14E	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	494	$27.67	497,405	cy	$249.62	$123,393	$0.25
24-3-03	N-8	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	4,058	$27.67	4,402,238	cy	$249.62	$1,012,946	$0.23
24-3-04	J-18	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,972	$27.67	2,381,300	cy	$249.62	$492,283	$0.21
24-3-04	J-19	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	11,443	$27.67	13,817,220	cy	$249.62	$2,858,414	$0.21
24-3-04	J-21 Single Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	3,475	$27.67	4,195,560	cy	$249.62	$867,342	$0.21
24-3-04	J-21 Double Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,891	$27.67	4,943,110	cy	$249.62	$1,220,809	$0.25
24-3-04	J-7	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	747	$27.67	663,140	cy	$249.62	$186,425	$0.22
24-3-04	N-9	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,639	$27.67	2,473,870	cy	$249.62	$409,103	$0.17
24-3-04	N-11	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	6,668	$27.67	3,774,330	cy	$249.62	$1,664,559	$0.44
24-3-04	N-14	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	4,672	$27.67	2,820,740	cy	$249.62	$583,128	$0.21
24-3-04	N-14E	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	412	$27.67	497,405	cy	$249.62	$102,828	$0.21
24-3-04	N-8	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,366	$27.67	3,791,230	cy	$249.62	$1,090,443	$0.29
24-3-05	J-18	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	272	$27.67	493,370	cy	$249.62	$67,998	$0.14
24-3-05	J-19	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	1,542	$27.67	2,793,000	cy	$249.62	$384,829	$0.14
24-3-05	J-21 Single Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	648	$27.67	1,173,330	cy	$249.62	$161,707	$0.14
24-3-05	J-21 Double Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	729	$27.67	863,800	cy	$249.62	$181,895	$0.21
24-3-05	J-7	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	74	$27.67	177,090	cy	$249.62	$18,470	$0.10
24-3-05	N-9	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	489	$27.67	822,330	cy	$249.62	$122,051	$0.15
24-3-05	N-11	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	497	$27.67	899,770	cy	$249.62	$124,005	$0.14
24-3-05	N-14	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	132	$27.67	239,260	cy	$249.62	$32,975	$0.14
24-3-05	N-14E	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	286	$27.67	518,810	cy	$249.62	$71,502	$0.14
24-3-05	N-8	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	567	$27.67	1,026,820	cy	$249.62	$141,474	$0.14
				Backfill Mine Pits Subtotal		75,864					$17,654,353	
24-3-06	J-18	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	824	$27.67	711,000	cy	$249.62	$205,778	$0.29
24-3-06	J-19	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	7,898	$27.67	6,812,151	cy	$249.62	$1,971,573	$0.29
24-3-06	J-21 Single Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,041	$27.67	2,623,178	cy	$249.62	$759,200	$0.29
24-3-06	J-21 Double Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-06	J-7	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	924	$27.67	797,025	cy	$249.62	$230,875	$0.29
24-3-06	N-9	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	0	$249.62	$240,824	$0.29
24-3-06	N-11	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-06	N-14	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	4,099	$27.67	3,535,600	cy	$249.62	$1,023,273	$0.29
24-3-06	N-14E	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	193	$27.67	166,200	cy	$249.62	$48,102	$0.29
24-3-06	N-8	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,394	$27.67	2,927,742	cy	$249.62	$847,347	$0.29
				Backfill and Grade Ramps Subtotal		23,269					$5,808,419	
24-3-07	J-18	General Grading	General Grading	D11R Dozer	$221.95	2,523	$27.67	230	acres	$249.62	$629,910	$2,738.74
24-3-07	J-19	General Grading	General Grading	D11R Dozer	$221.95	5,354	$27.67	488	acres	$249.62	$1,336,505	$2,738.74
24-3-07	J-21 Single Width	General Grading	General Grading	D11R Dozer	$221.95	2,194	$27.67	200	acres	$249.62	$547,748	$2,738.74
24-3-07	J-21 Double Width	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-07	J-7	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-07	N-9	General Grading	General Grading	D11R Dozer	$221.95	5,464	$27.67	498	acres	$249.62	$1,363,693	$2,738.74
24-3-07	N-11	General Grading	General Grading	D11R Dozer	$221.95	7,109	$27.67	648	acres	$249.62	$1,774,704	$2,738.74
24-3-07	N-14	General Grading	General Grading	D11R Dozer	$221.95	461	$27.67	42	acres	$249.62	$115,027	$2,738.74
24-3-07	N-14E	General Grading	General Grading	D11R Dozer	$221.95	230	$27.67	21	acres	$249.62	$57,514	$2,738.74
24-3-07	N-8	General Grading	General Grading	D11R Dozer	$221.95	625	$27.67	57	acres	$249.62	$156,108	$2,738.74
				General Grading Subtotal		23,962					$5,981,409	
24-3-08	J-18	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	76	$26.59	58,580	lineal feet	$85.39	$6,472	$0.11
24-3-08	J-19	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	215	$26.59	166,170	lineal feet	$85.39	$18,358	$0.11
24-3-08	J-21 Single Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	201	$26.59	155,620	lineal feet	$85.39	$17,193	$0.11
24-3-08	J-21 Double Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	67	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-08	J-7	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	98	$26.59	75,400	lineal feet	$85.39	$8,330	$0.11
24-3-08	N-9	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	67	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-08	N-11	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	166	$26.59	129,920	lineal feet	$85.39	$14,354	$0.11
24-3-08	N-14	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	48	$26.59	37,410	lineal feet	$85.39	$4,133	$0.11
24-3-08	N-14E	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	32	$26.59	24,940	lineal feet	$85.39	$2,755	$0.11
24-3-08	N-8	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	239	$26.59	185,020	lineal feet	$85.39	$20,441	$0.11
24-3-09	J-18	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	16	$26.59	9,600	lineal feet	$85.39	$1,405	$0.15
24-3-09	J-19	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	29	$26.59	16,900	lineal feet	$85.39	$2,474	$0.15
24-3-09	J-21 Single Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	42	$26.59	24,430	lineal feet	$85.39	$3,576	$0.15
24-3-09	J-21 Double Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	8,000	lineal feet	$85.39	$1,317	$0.15
24-3-09	J-7	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	26	$26.59	15,200	lineal feet	$85.39	$2,225	$0.15

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-09	N-9	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.60	15	$28.59	9,000	lineal feet	$85.39	$1,317	$0.15
24-3-09	N-11	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.60	19	$28.59	11,300	lineal feet	$85.39	$1,654	$0.15
24-3-09	N-14	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.60	12	$28.59	6,760	lineal feet	$85.39	$992	$0.15
24-3-09	N-14E	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.60	8	$28.59	4,520	lineal feet	$85.39	$662	$0.15
24-3-09	N-6	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.60	49	$28.59	28,800	lineal feet	$85.39	$4,216	$0.15
24-3-10	J-16	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	114	$23.94	21,150	cy	$104.28	$11,899	$0.56
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	380	$23.94	54,750	cy	$104.28	$39,660	$0.72
24-3-10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	445	$23.94	51,350	cy	$104.28	$46,427	$0.90
24-3-10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	88	$23.94	20,850	cy	$104.28	$9,294	$0.45
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	211	$23.94	29,700	cy	$104.28	$22,045	$0.74
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	42	$23.94	20,850	cy	$104.28	$4,422	$0.21
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	105	$23.94	24,500	cy	$104.28	$10,921	$0.45
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	25	$23.94	4,550	cy	$104.28	$2,560	$0.56
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	51	$23.94	12,100	cy	$104.28	$5,265	$0.44
24-3-10	N-6	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	396	$23.94	59,250	cy	$104.28	$41,322	$0.70
24-3-10	J-16	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	139	$27.67	8,340	feet	$113.01	$15,722	$2.48
24-3-10	J-19	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	361	$27.67	16,430	feet	$113.01	$40,745	$2.48
24-3-10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	338	$27.67	15,415	feet	$113.01	$38,228	$2.48
24-3-10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,260	feet	$113.01	$15,524	$2.48
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	198	$27.67	8,910	feet	$113.01	$22,095	$2.48
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,260	feet	$113.01	$15,524	$2.48
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	104	$27.67	4,750	feet	$113.01	$11,779	$2.48
24-3-10	N-6	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	390	$27.67	17,760	feet	$113.01	$44,091	$2.48
				Surface Stabilization Subtotal		5,428					$557,311	
24-3-11	J-7	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$28.59	0	cy	$211.52	$0	N/A
24-3-11	J-16	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	1,238	$28.59	845,850	cy	$211.52	$261,869	$0.41
24-3-11	J-19	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	6,316	$28.59	4,337,948	cy	$211.52	$1,759,014	$0.41
24-3-11	J-21 Single Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,656	$28.59	1,385,873	cy	$211.52	$561,883	$0.41
24-3-11	J-21 Double Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,563	$28.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-11	N-9	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,874	$28.59	1,499,014	cy	$211.52	$607,842	$0.41
24-3-11	N-11	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,563	$28.59	1,337,116	cy	$211.52	$542,193	$0.41
24-3-11	N-14	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	560	$28.59	292,321	cy	$211.52	$118,534	$0.41
24-3-11	N-14E	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	419	$28.59	218,604	cy	$211.52	$88,678	$0.41
24-3-11	N-6	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$28.59	0	cy	$211.52	$0	N/A
24-3-12	J-16	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,381	$28.59	1,076,416	cy	$211.52	$503,632	$0.47
24-3-12	J-19	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	21,323	$28.59	7,229,913	cy	$211.52	$4,510,293	$0.62
24-3-12	J-21 Single Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	9,538	$28.59	2,309,454	cy	$211.52	$2,017,015	$0.87
24-3-12	J-21 Double Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$28.59	2,228,526	cy	$211.52	$1,148,947	$0.51
24-3-12	J-7	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	1,645	$28.59	343,240	cy	$211.52	$347,955	$1.01
24-3-12	N-9	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	11,605	$28.59	2,498,357	cy	$211.52	$2,454,747	$0.98
24-3-12	N-11	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$28.59	2,228,526	cy	$211.52	$1,148,947	$0.51
24-3-12	N-14	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,119	$28.59	467,201	cy	$211.52	$448,303	$0.92
24-3-12	N-14E	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	554	$28.59	227,808	cy	$211.52	$117,244	$0.51
24-3-12	N-6	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	3,782	$28.59	814,279	cy	$211.52	$800,065	$0.98
				Topsoil/Suitable Material Replacement Subtotal		84,982					$17,975,376	
24-3-13	J-16	Revegetation	Revegetation	Miscellaneous	-	-	-	417	acres	-	$688,799	$1,647.00
24-3-13	J-19	Revegetation	Revegetation	Miscellaneous	-	-	-	2,801	acres	-	$4,612,991	$1,647.00
24-3-13	J-21 Single Width	Revegetation	Revegetation	Miscellaneous	-	-	-	895	acres	-	$1,473,530	$1,647.00
24-3-13	J-21 Double Width	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,894	$1,647.00
24-3-13	J-7	Revegetation	Revegetation	Miscellaneous	-	-	-	213	acres	-	$350,403	$1,647.00
24-3-13	N-9	Revegetation	Revegetation	Miscellaneous	-	-	-	968	acres	-	$1,594,058	$1,647.00
24-3-13	N-11	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,894	$1,647.00
24-3-13	N-14	Revegetation	Revegetation	Miscellaneous	-	-	-	189	acres	-	$310,855	$1,647.00
24-3-13	N-14E	Revegetation	Revegetation	Miscellaneous	-	-	-	141	acres	-	$232,560	$1,647.00
24-3-13	N-6	Revegetation	Revegetation	Miscellaneous	-	-	-	505	acres	-	$831,271	$1,647.00
24-3-14	J-16	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	11	acres	-	$17,294	$1,647.00
24-3-14	J-19	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	167	acres	-	$274,555	$1,647.00
24-3-14	J-21 Single Width	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	157	acres	-	$257,758	$1,647.00
24-3-14	J-21 Double Width	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	41	acres	-	$67,362	$1,647.00
24-3-14	J-7	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	31	acres	-	$50,503	$1,647.00
24-3-14	N-9	Revegetation	Revegetation of Topsoil Stockpiles	Miscellaneous	-	-	-	77	acres	-	$126,984	$1,647.00
24-3-14	N-11	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	40	acres	-	$65,386	$1,647.00
24-3-14	N-14	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	15	acres	-	$25,034	$1,647.00
24-3-14	N-14E	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	19	acres	-	$30,799	$1,647.00
24-3-14	N-6	Revegetation	Revegetation of Topsoil Stockpiles	Miscellaneous	-	-	-	77	acres	-	$126,984	$1,647.00
				Revegetation Subtotal							$13,976,969	
CATEGORY TOTAL											$70,67[illegible]	
24-4-01	J-1/N-6	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	#DIV/0!
24-4-01	J-16	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,103	$27.67	201	acres	$249.62	$275,265	$1,369.37
24-4-01	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,210	$27.67	403	acres	$249.62	$551,764	$1,369.37
24-4-01	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,363	$27.67	431	acres	$249.62	$589,777	$1,369.37
24-4-01	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,496	$1,369.37
24-4-01	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,063	$1,369.37

Table 24-1-8
JOINT MINES
Direct Costs by Project Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-4-01	N-14	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,533	$27.67	280	acres	$249.62	$382,784	$1,369.37
24-4-01	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	184	$27.67	35	acres	$249.62	$46,486	$1,369.37
24-4-01	N-10	General Grading at 50%	General Grading	D11R Dozer	$221.95	112	$27.67	20	acres	$249.62	$27,964	$1,369.37
24-4-01	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	511	$27.67	93	acres	$249.62	$127,586	$1,369.37
24-4-01	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	435	$27.67	79	acres	$249.62	$108,657	$1,369.37
24-4-01	N-7/8	General Grading at 50%	General Grading	D11R Dozer	$221.95	99	$27.67	18	acres	$249.62	$24,849	$1,369.37
24-4-01	N-9	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,223	$27.67	223	acres	$249.62	$305,370	$1,369.37
				General Grading at 50% Subtotal		5,789					$2,748,871	
24-4-02	J-1/N-8	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0	$27.67	0	acres	$271.53	$0	#DIV/0!
24-4-02	J-16	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	143	$27.67	201	acres	$271.53	$38,918	$193.61
24-4-02	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	287	$27.67	403	acres	$271.53	$78,011	$193.61
24-4-02	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	307	$27.67	431	acres	$271.53	$83,386	$193.61
24-4-02	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-02	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	134	$27.67	188	acres	$271.53	$36,488	$193.61
24-4-02	N-14	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	199	$27.67	280	acres	$271.53	$54,120	$193.61
24-4-02	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-02	N-10	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	15	$27.67	20	acres	$271.53	$3,954	$193.61
24-4-02	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	66	$27.67	93	acres	$271.53	$18,039	$193.61
24-4-02	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	57	$27.67	79	acres	$271.53	$15,382	$193.61
24-4-02	N-7/8	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	13	$27.67	18	acres	$271.53	$3,485	$193.61
24-4-02	N-9	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	159	$27.67	223	acres	$271.53	$43,175	$193.61
				Surface Ripping Subtotal		1,451					$388,850	
24-4-03	J-1/N-8	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	#DIV/0!
24-4-03	J-16	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	201	acres	-	$165,537	$823.50
24-4-03	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	403	acres	-	$331,815	$823.50
24-4-03	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	431	acres	-	$354,675	$823.50
24-4-03	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,164	$823.50
24-4-03	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
24-4-03	N-14	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	280	acres	-	$230,195	$823.50
24-4-03	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,164	$823.50
24-4-03	N-10	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	20	acres	-	$16,817	$823.50
24-4-03	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	93	acres	-	$76,726	$823.50
24-4-03	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	79	acres	-	$65,343	$823.50
24-4-03	N-7/8	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	18	acres	-	$14,823	$823.50
24-4-03	N-9	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	223	acres	-	$183,841	$823.50
				Revegetation at 50% Subtotal							$1,653,092	
24-4-04	Black Mesa	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.60	1.9	$28.59	3,000	lineal feet	$85.39	$168	$0.06
24-4-04	Kayenta	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.60	83	$28.59	126,000	lineal feet	$85.39	$7,071	$0.06
				Surface Stabilization at 50% Subtotal		85					$7,238	
CATEGORY 1 TOTALS						14,305					$4,797,849	
24-4-05	J-16	General Grading at 50%	General Grading	D11R Dozer	$221.95	568	$27.67	103	acres	$249.62	$141,882	$1,369.37
24-4-05	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	8,127	$27.67	1,482	acres	$249.62	$2,028,600	$1,369.37
24-4-05	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,063	N/A
24-4-05	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	488	$27.67	89	acres	$249.62	$121,874	$0.00
24-4-05	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$30	N/A
24-4-05	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-05	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-05	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	14,805	$27.67	2,699	acres	$249.62	$3,695,786	$1,369.37
				General Grading at 50% Subtotal		25,023					$6,246,238	
24-4-06	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	1,924	$27.67	13,062,852	cy	$271.53	$522,528	$0.04
24-4-06	J-16	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	74	$27.67	500,760	cy	$271.53	$20,032	$0.04
24-4-06	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	1,056	$27.67	7,170,738	cy	$271.53	$286,842	$0.04
24-4-06	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	134	$27.67	912,117	cy	$271.53	$36,486	$0.04
24-4-06	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	63	$27.67	430,760	cy	$271.53	$17,231	$0.00
24-4-06	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0.0	$27.67	106	cy	$271.53	$4	$0.04
24-4-06	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0	$27.67	0	cy	$271.53	$0	N/A
24-4-06	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0.0	$27.67	0	cy	$271.53	$0	N/A
				Surface Ripping Subtotal		3,252					$883,125	
24-4-07	J-16	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	103	acres	-	$85,205	$823.50
24-4-07	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	1,482	acres	-	$1,220,682	$823.50
24-4-07	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	2,699	acres	-	$2,222,540	$823.50
24-4-07	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-4-07	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
24-4-07	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	89	acres	-	$73,292	$823.50
24-4-07	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$18	$823.50
24-4-07	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
				Revegetation at 50% Subtotal							$3,756,309	
CATEGORY 1A TOTALS						28,275					$10,885,672	
24-5-01	Black Mesa	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$2,108,472	$2,108,471.50
24-5-01	Joint	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$328,554	$328,554.38
24-5-01	Kayenta	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$1,469,164	$1,469,163.96
				Facilities Demolition Subtotal							$3,906,190	
24-5-02	Black Mesa	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	7	$27.67	5,152	cy	$274.57	$1,676	$0.36
24-5-02	Joint	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	3	$27.67	1,928	cy	$274.57	$701	$0.36
24-5-02	Kayenta	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	13	$27.67	9,777	cy	$274.57	$3,559	$0.36

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-02	Black Mesa	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$42,246	$42,246
24-5-02	Joint	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$15,787	$15,787
24-5-02	Kayenta	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$80,170	$80,170
				Concrete Removal Subtotal		22					$144,338	
24-5-03	Black Mesa	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	2,214	$27.67	1,489,494	cy	$249.62	$552,756	$0.37
24-5-03	Joint	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	1,882	$27.67	1,252,295	cy	$249.62	$484,731	$0.37
24-5-03	Kayenta	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	5,422	$27.67	3,647,398	cy	$249.62	$1,353,560	$0.37
				Surfacing Removal Subtotal		9,498					$2,371,047	
24-5-04	Black Mesa	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	336	$27.67	1,140,304	cy	$271.53	$91,228	$0.08
24-5-04	Joint	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	279	$27.67	947,685	cy	$271.53	$75,834	$0.08
24-5-04	Kayenta	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	819	$27.67	2,779,544	cy	$271.53	$222,373	$0.08
				Surface Ripping Subtotal		1,434					$389,436	
24-5-05	Black Mesa	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	1,695	$27.67	1,140,304	cy	$249.62	$423,170	$0.37
24-5-05	Joint	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	1,409	$27.67	947,685	cy	$249.62	$351,763	$0.37
24-5-05	Kayenta	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	4,132	$27.67	2,779,544	cy	$249.62	$1,031,497	$0.37
				Grade Facilities Area Subtotal		7,237					$1,806,430	
24-5-06	Black Mesa	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	878	$28.59	496,377	cy	$211.52	$185,705	$0.37
24-5-06	Joint	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	772	$28.59	402,892	cy	$211.52	$163,371	$0.41
24-5-06	Kayenta	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,121	$28.59	1,198,472	cy	$211.52	$448,591	$0.37
				Topsoil Replacement Subtotal		3,772					$797,767	
24-5-07	Black Mesa	Revegetation	Revegetation	Miscellaneous	-	-	-	396	acres	-	$651,961	$1,647.00
24-5-07	Joint	Revegetation	Revegetation	Miscellaneous	-	-	-	326	acres	-	$539,557	$1,647.00
24-5-07	Kayenta	Revegetation	Revegetation	Miscellaneous	-	-	-	963	acres	-	$1,586,398	$1,647.00
				Revegetation Subtotal							$2,777,933	
				MAJOR FACILITIES SUBTOTAL		21,983					$12,193,131	
24-5-08	Black Mesa Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	5,244	feet	-	$241,828	$46.12
24-5-08	Kayenta Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	88,166	feet	-	$4,065,969	$46.12
				Conveyors Subtotal							$4,307,795	
24-5-09	Black Mesa Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	123,901	feet	-	$140,762	$1.14
24-5-09	Kayenta Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	201,287	feet	-	$228,680	$1.14
				Powerlines Subtotal							$369,442	
24-5-10	Black Mesa Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	105	$27.67	355,014	cy	$271.53	$28,402	$0.08
24-5-10	Kayenta Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	5	$27.67	15,972	cy	$271.53	$1,278	$0.08
24-5-11	Black Mesa Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	528	$27.67	355,014	cy	$249.62	$131,747	$0.37
24-5-11	Kayenta Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	20	$27.67	15,972	cy	$249.62	$4,939	$0.31
24-5-12	Black Mesa Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	475	$28.59	189,341	cy	$211.52	$100,400	$0.53
24-5-12	Kayenta Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	21	$28.59	8,516	cy	$211.52	$4,517	$0.53
24-5-13	Black Mesa Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	73	acres	-	$120,807	$1,647.00
24-5-13	Kayenta Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$5,435	$1,647.00
				Scoria Pits Subtotal		1,153					$397,526	
24-5-14	Kayenta Landfarm Areas	Landfarm Removal	Haul Landfarm Material	637E P-P Scraper	$184.93	16	$28.59	3,000	cy	$211.52	$3,416	$1.14
24-5-15	Kayenta Landfarm Areas	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	4	$27.67	12,100	cy	$271.53	$968	$0.08
24-5-16	Kayenta Landfarm Areas	Grade Landfarm Area	Landfarm Grading	D11R Dozer	$221.95	94	$27.67	4,033	cy	$249.62	$23,387	$5.80
24-5-17	Kayenta Landfarm Areas	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12	$28.59	6,050	cy	$211.52	$2,453	$0.41
24-5-18	Kayenta Landfarm Areas	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$4,118	$1,647.00
				Landfarm Areas Subtotal		126					$34,342	
24-5-19	J-3 Airport	Asphalt Removal	Asphalt Removal/Disposal	D11R Dozer - Ripper Equipped	$243.86	27	$27.67	9,088	cy	$271.53	$7,253	$0.80
24-5-20	J-3 Airport	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	27	$27.67	90,856	cy	$271.53	$7,253	$0.08
				Airport Subtotal		53					$14,506	
24-5-21	Black Mesa Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	47	$27.67	76,562	cy	$249.62	$11,688	$0.15
24-5-21	Kayenta Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	81	$27.67	184,705	cy	$249.62	$20,141	$0.11
24-5-22	Black Mesa Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	68	$27.67	229,886	cy	$271.53	$18,376	$0.08
24-5-22	Kayenta Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	163	$27.67	554,116	cy	$271.53	$44,331	$0.08
24-5-23	Black Mesa Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	1,041	$27.67	95	acres	$249.62	$259,939	$2,738.74
24-5-23	Kayenta Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	2,512	$27.67	229	acres	$249.62	$627,089	$2,738.74
24-5-24	Black Mesa Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	939	$28.59	244,999	cy	$211.52	$198,691	$0.81
24-5-24	Kayenta Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,266	$28.59	591,057	cy	$211.52	$479,341	$0.81
24-5-25	Black Mesa Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	95	acres	-	$156,320	$1,647.00
24-5-25	Kayenta Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	229	acres	-	$377,119	$1,647.00
				Permanent Roads Subtotal		7,117					$2,193,044	
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	432	$27.67	213,060	cy	$249.62	$107,829	$0.51
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	1,658	$27.67	817,639	cy	$249.62	$413,788	$0.51
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	5,040	feet	-	$14,014	$2.78
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	11,170	feet	-	$21,020	$1.88
24-5-27	Black Mesa Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	204	$27.67	256,719	cy	$249.62	$51,037	$0.20
24-5-27	Kayenta Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	829	$27.67	817,639	cy	$249.62	$206,883	$0.25
24-5-28	Black Mesa Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	227	$27.67	770,157	cy	$271.53	$61,615	$0.08
24-5-28	Kayenta Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.86	723	$27.67	2,452,918	cy	$271.53	$196,242	$0.08
24-5-29	Black Mesa Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	4,385	$27.67	398	acres	$249.62	$1,089,494	$2,738.74
24-5-29	Kayenta Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	13,901	$27.67	1,267	acres	$249.62	$3,469,889	$2,738.74
24-5-30	Black Mesa Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,861	$28.59	1,026,879	cy	$211.52	$818,770	$0.80
24-5-30	Kayenta Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12,298	$28.59	3,270,554	cy	$211.52	$2,601,377	$0.80
24-5-31	Black Mesa Primary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	398	acres	-	$655,190	$1,647.00
24-5-31	Kayenta Primary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	1,267	acres	-	$2,086,752	$1,647.00
				Primary Roads Subtotal		38,498					$11,781,978	

Table 24-1-8
JOINT MINES
Direct Costs by Project Area

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	370	$27.67	182,647	cy	$249.62	$92,429	$0.51
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	659	$27.67	325,191	cy	$249.62	$164,563	$0.51
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	4,640	feet	-	$13,914	$2.99
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	6,960	feet	-	$20,721	$2.98
24-5-33	Black Mesa Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	102	$27.67	182,647	cy	$249.62	$25,418	$0.14
24-5-33	Kayenta Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	109	$27.67	325,191	cy	$249.62	$49,731	$0.15
24-5-34	Black Mesa Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	161	$27.67	547,942	cy	$271.53	$43,837	$0.08
24-5-34	Kayenta Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	287	$27.67	975,574	cy	$271.53	$78,049	$0.08
24-5-35	Black Mesa Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	3,975	$27.67	362	acres	$249.62	$992,179	$2,738.74
24-5-35	Kayenta Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	7,077	$27.67	645	acres	$249.62	$1,766,508	$2,738.74
24-5-36	Black Mesa Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,310	$26.59	935,154	cy	$211.52	$700,061	$0.75
24-5-36	Kayenta Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	6,261	$26.59	1,584,979	cy	$211.52	$1,324,313	$0.80
24-5-37	Black Mesa Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	362	acres	-	$598,568	$1,647.00
24-5-37	Kayenta Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	645	acres	-	$1,062,327	$1,647.00
				Ancillary Roads Subtotal		22,401					$6,930,817	
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	357	$27.67	258,052	cy	$249.62	$89,083	$0.35
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	535	$27.67	384,078	cy	$249.62	$133,624	$0.35
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	662	$27.67	39,399	cy	$116.34	$84,219	$1.83
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	828	$27.67	59,089	cy	$116.34	$96,324	$1.63
24-5-39	Black Mesa Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment into Basin	D11R Dozer	$221.95	819	$27.67	587,408	cy	$249.62	$204,385	$0.35
24-5-39	Kayenta Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment into Basin	D11R Dozer	$221.95	1,228	$27.67	881,112	cy	$249.62	$306,547	$0.35
24-5-40	Black Mesa Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	2,430	$27.67	222	acres	$249.62	$606,886	$2,736.74
24-5-40	Kayenta Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	3,646	$27.67	332	acres	$249.62	$910,029	$2,736.74
24-5-41	Black Mesa Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,150	$26.59	571,817	cy	$211.52	$454,819	$0.80
24-5-41	Kayenta Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,228	$26.59	857,725	cy	$211.52	$682,229	$0.80
24-5-42	Black Mesa Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	222	acres	-	$364,843	$1,647.00
24-5-42	Kayenta Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	332	acres	-	$547,265	$1,647.00
				Water Storage and Sedimentation Ponds Subtotal		15,770					$4,480,030	
24-5-43	Black Mesa Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Site Reclamation	Concrete Removal/Disposal	-	-	-	-	-	-	$8,093	$8,092.90
24-5-43	Kayenta Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Concrete Removal/Disposal	Miscellaneous	-	-	-	-	-	-	$12,139	$12,139.35
24-5-44	Black Mesa Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	79	$27.67	7	acres	$249.62	$19,719	$2,738.74
24-5-44	Kayenta Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	118	$27.67	11	acres	$249.62	$29,578	$2,738.74
24-5-44	Black Mesa Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	11	acres	-	$18,446	$1,647.00
24-5-44	Kayenta Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	17	acres	-	$27,970	$1,647.00
				Environmental Monitoring Sites Subtotal		197					$115,846	
24-5-45	Black Mesa Monitoring Wells	Reclaim Monitoring Wells	Well/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$38,000	$38,000
24-5-45	Kayenta Monitoring Wells	Reclaim Monitoring Wells	Well/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$57,000	$57,000
				Monitoring Wells Subtotal							$95,000	
24-5-46	Kayenta N-11 Coal Handling Facility	Cut/Fill Earthwork	Cut/Fill Earthwork	637E P-P Scraper	$184.93	2,478	$26.59	659,063	cy	$211.52	$524,214	$0.80
24-5-47	Kayenta N-11 Coal Handling Facility	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	982	$27.67	422,795	cy	$249.62	$245,157	$0.58
				N-11 Coal Handling Facility Subtotal		3,460					$769,371	
24-5-50	Black Mesa Draglines	Dragline Removal	Disassemble and Remove Draglines	Miscellaneous	-	-	-	-	-	-	$300,000	N/A
24-5-50	Kayenta Draglines and Shovels	Dragline and Shovel Removal	Disassemble and Remove Draglines and Shovels	Miscellaneous	-	-	-	-	-	-	$800,000	N/A
				Draglines Subtotal		-					$1,100,000	
CATEGORY TOTAL				OTHER FACILITIES SUBTOTAL		68,778					$32,576,297	
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	16H Grader	$87.36	9,600	$27.67	-	-	$85.03	$912,303	$912,303
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	16H Grader	$87.36	14,400	$27.67	-	-	$85.03	$1,368,455	$1,368,455
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	4,800	$21.30	-	-	$58.67	$281,635	$281,635
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	7,200	$21.30	-	-	$58.67	$422,453	$422,453
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	8,800	$21.30	-	-	$145.97	$1,284,558	$1,284,558
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	13,200	$21.30	-	-	$145.97	$1,926,837	$1,926,837
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	28,000	$21.30	-	-	$29.33	$821,137	$821,137
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	42,000	$21.30	-	-	$29.33	$1,231,706	$1,231,706
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	4,800	-	-	-	$11.49	$55,140	$55,140
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	7,200	-	-	-	$11.49	$82,710	$82,710
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	3,200	-	-	-	$1.09	$3,488	$3,488
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	4,800	-	-	-	$1.09	$5,232	$5,232
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	3,200	-	-	-	$1.62	$5,178	$5,178
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	4,800	-	-	-	$1.62	$7,764	$7,764
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Diesel Floodlighting	$5.73	43,200	-	-	-	$5.73	$247,822	$247,822
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Diesel Floodlighting	$5.73	64,800	-	-	-	$5.73	$371,434	$371,434
SUPPORT EQUIPMENT TOTAL						300,000					$10,374,784	
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	155	$26.59	-	-	$211.52	$32,743	$32,743
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	232	$26.59	-	-	$211.52	$49,115	$49,115
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	769D Rear Dump Truck	$80.34	34	$23.94	-	-	$104.28	$3,504	$3,504
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	769D Rear Dump Truck	$80.34	50	$23.94	-	-	$104.28	$5,255	$5,255
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	988F Loader Series II	$85.34	22	$27.67	-	-	$113.01	$2,531	$2,531
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	988F Loader Series II	$85.34	34	$27.67	-	-	$113.01	$3,797	$3,797

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	230	$27.67	-	-	$249.62	$57,314	$57,314
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	344	$27.67	-	-	$249.62	$85,971	$85,971
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.80	22	$26.59	-	-	$85.39	$1,913	$1,913
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.80	34	$26.59	-	-	$85.39	$2,889	$2,889
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.36	11	$27.67	-	-	$95.03	$1,084	$1,084
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.36	17	$27.67	-	-	$95.03	$1,597	$1,597
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	Drltech D55SP	$196.78	8	$26.59	-	-	$223.37	$1,787	$1,787
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	Drltech D55SP	$196.78	12	$26.59	-	-	$223.37	$2,680	$2,680
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$88.67	137	$27.67	-	-	$116.34	$15,915	$15,915
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$88.67	205	$27.67	-	-	$116.34	$23,873	$23,873
MOBILIZATION TOTAL											$261,928	
24-6-01	Kayenta: J-21	Phase I Exploration Bond	-	-	-	-	-	-	-	-	$284,100	$284,100.00
				TOTAL		877,578 hours					$142,283,397	

Table 24-1-7
WORKSHEET MASTER SUMMARY

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-5-46	Kayenta N 11 Coal Handling Facility	Cut/Fill Earthwork	Cut/Fill Earthwork	637E P-P Scraper	$184.93	2,478	$26.59	659,083	cy	$211.52	$524,214	$0.80
24-5-47	Kayenta N 11 Coal Handling Facility	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	982	$27.67	422,785	cy	$249.62	$245,157	$0.58
24-5-21	Kayenta Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	81	$27.67	184,705	cy	$249.62	$20,141	$0.11
24-5-22	Kayenta Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	163	$27.67	554,116	cy	$271.53	$44,331	$0.08
24-5-23	Kayenta Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	2,512	$27.67	229	acres	$249.62	$627,099	$2,738.74
24-5-24	Kayenta Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,266	$26.59	591,057	cy	$211.52	$479,341	$0.81
24-5-25	Kayenta Permanent Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	229	acres	-	$377,119	$1,647.00
24-5-09	Kayenta Powerlines	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	201,287	feet	-	$228,680	$1.14
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	1,658	$27.67	817,639	cy	$249.62	$413,766	$0.51
24-5-26	Kayenta Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	11,170	feet	-	$21,020	$1.88
24-5-27	Kayenta Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	829	$27.67	817,639	cy	$249.62	$206,883	$0.25
24-5-28	Kayenta Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	723	$27.67	2,452,918	cy	$271.53	$196,242	$0.08
24-5-29	Kayenta Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	13,901	$27.67	1,267	acres	$249.62	$3,469,989	$2,738.74
24-5-30	Kayenta Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12,298	$26.59	3,270,554	cy	$211.52	$2,601,377	$0.80
24-5-31	Kayenta Primary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	1,267	acres	-	$2,088,752	$1,647.00
24-5-10	Kayenta Scona Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	5	$27.67	15,972	cy	$271.53	$1,278	$0.08
24-5-11	Kayenta Scona Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	20	$27.67	15,972	cy	$249.62	$4,939	$0.31
24-5-12	Kayenta Scona Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	21	$26.59	8,518	cy	$211.52	$4,517	$0.53
24-5-13	Kayenta Scona Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	3	acres	-	$5,435	$1,647.00
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	535	$27.67	384,078	cy	$249.62	$133,624	$0.35
24-5-38	Kayenta Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208B Linkbelt	$88.67	828	$27.67	59,089	cy	$116.34	$96,324	$1.63
24-5-39	Kayenta Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment into Basin	D11R Dozer	$221.95	1,228	$27.67	881,112	cy	$249.62	$306,547	$0.35
24-5-40	Kayenta Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	3,646	$27.67	332	acres	$249.62	$910,029	$2,738.74
24-5-41	Kayenta Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,225	$26.59	857,725	cy	$211.52	$682,229	$0.80
24-5-42	Kayenta Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	332	acres	-	$547,265	$1,647.00
24-4-01	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,003	$1,369.37
24-4-02	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	134	$27.67	188	acres	$271.53	$36,480	$193.61
24-4-03	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
24-4-05	N-1	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,034	$27.67	188	acres	$249.62	$258,003	$1,369.37
24-4-06	N-1	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	134	$27.67	812,117	cy	$271.53	$36,480	$0.04
24-4-07	N-1	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	188	acres	-	$155,192	$823.50
24-4-01	N-10	General Grading at 50%	General Grading	D11R Dozer	$221.95	112	$27.67	20	acres	$249.62	$27,964	$1,369.37
24-4-02	N-10	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	15	$27.67	20	acres	$271.53	$3,954	$193.61
24-4-03	N-10	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	20	acres	-	$16,817	$823.50
24-3-02	N-11	Highwall Reduction	Cast/Blast Highwall	Daltech D55SP	$198.78	0	-	-	-	-	$0	$0
24-3-03	N-11	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	1,945	$27.67	1,258,110	cy	$249.62	$485,498	$0.39
24-3-01	N-11	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	6,668	$27.67	3,774,330	cy	$249.62	$1,664,559	$0.44
24-3-05	N-11	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	497	$27.67	899,770	cy	$249.62	$124,005	$0.14
24-3-06	N-11	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-07	N-11	General Grading	General Grading	D11R Dozer	$221.95	7,109	$27.67	648	acres	$249.62	$1,774,704	$2,738.74
24-3-08	N-11	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	168	$26.59	129,920	lineal feet	$85.39	$14,354	$0.11
24-3-09	N-11	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	19	$26.59	11,300	lineal feet	$85.39	$1,654	$0.15
24-3-10	N-11	Surface Stabilization	Load, haul and place riprap	769D Rear Dump Truck	$80.34	105	$23.94	24,500	cy	$104.28	$10,921	$0.45
24-3-10	N-11	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-11	N-11	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,583	$26.59	1,337,118	cy	$211.52	$542,103	$0.41
24-3-12	N-11	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$26.59	2,226,528	cy	$211.52	$1,146,947	$0.51
24-3-13	N-11	Revegetation	Revegetation	Miscellaneous	-	-	-	883	acres	-	$1,421,894	$1,647.00
24-3-14	N-11	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	40	acres	-	$65,386	$1,647.00
24-4-01	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	511	$27.67	93	acres	$249.62	$127,588	$1,369.37
24-4-02	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	66	$27.67	93	acres	$271.53	$18,039	$193.61
24-4-03	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	93	acres	-	$76,726	$823.50
24-4-05	N-11	General Grading at 50%	General Grading	D11R Dozer	$221.95	488	$27.67	89	acres	$249.62	$121,674	$1,369.37
24-4-06	N-11	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	63	$27.67	430,780	cy	$271.53	$17,231	$0.04
24-4-07	N-11	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	89	acres	-	$73,292	$823.50
24-3-03	N-14	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	2,803	$27.67	2,820,740	cy	$249.62	$699,753	$0.25
24-3-01	N-14	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	2,338	$27.67	2,820,740	cy	$249.62	$583,128	$0.21
24-3-05	N-14	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	132	$27.67	239,260	cy	$249.62	$32,975	$0.14
24-3-06	N-14	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	4,098	$27.67	3,535,600	cy	$249.62	$1,023,273	$0.29
24-3-07	N-14	General Grading	General Grading	D11R Dozer	$221.95	461	$27.67	42	acres	$249.62	$115,027	$2,738.74
24-3-08	N-14	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	48	$26.59	37,410	lineal feet	$85.39	$4,133	$0.11
24-3-09	N-14	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	12	$26.59	6,780	lineal feet	$85.39	$992	$0.15
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	25	$23.94	4,550	cy	$104.28	$2,560	$0.56
24-3-10	N-14	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	161	$27.67	7,340	feet	$113.01	$18,202	$2.48
24-3-11	N-14	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	580	$26.59	293,321	cy	$211.52	$118,534	$0.41
24-3-12	N-14	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,110	$26.59	487,201	cy	$211.52	$448,303	$0.92
24-3-13	N-14	Revegetation	Revegetation	Miscellaneous	-	-	-	189	acres	-	$310,855	$1,647.00
24-3-14	N-14	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	15	acres	-	$25,034	$1,647.00
24-4-01	N-14	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,533	$27.67	280	acres	$249.62	$382,784	$1,369.37
24-4-02	N-14	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	199	$27.67	280	acres	$271.53	$54,120	$193.61
24-4-03	N-14	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	280	acres	-	$230,195	$823.50
24-3-03	N-14E	Backfill Mine Pits	Doze First Two Spoils (Highwall Side)	D11R Dozer	$221.95	494	$27.67	497,405	cy	$249.62	$123,393	$0.25
24-3-01	N-14E	Backfill Mine Pits	Doze First Two Spoils (Spoil Side)	D11R Dozer	$221.95	412	$27.67	497,405	cy	$249.62	$102,828	$0.21

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-04		Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	747	$27.67	863,140	cy	$249.62	$186,425	$0.22
24-3-05		Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	74	$27.67	177,090	cy	$249.62	$18,470	$0.10
24-3-06		Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	924	$27.67	797,025	cy	$249.62	$230,675	$0.29
24-3-07		General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3-08	J-7	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	98	$26.59	75,400	lineal feet	$85.39	$8,330	$0.11
24-3-09	J-7	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	26	$26.59	19,200	lineal feet	$85.39	$2,225	$0.15
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	211	$23.94	29,700	cy	$104.28	$22,046	$0.74
24-3-10	J-7	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	198	$27.67	8,910	feet	$113.01	$22,095	$2.48
24-3-11	J-7	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$26.59	0	cy	$211.52	$0	N/A
24-3-12	J-7	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	1,845	$26.59	343,240	cy	$211.52	$347,955	$1.01
24-3-13	J-7	Revegetation	Revegetation	Miscellaneous	-	-	-	213	acres	-	$350,403	$1,647.00
24-3-14	J-7	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	31	acres	-	$50,583	$1,647.00
24-5-01	Joint	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$328,554	$328,554.36
24-5-02	Joint	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	3	$27.67	1,925	cy	$274.57	$701	$0.36
24-5-02	Joint	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$15,787	$15,787
24-5-03	Joint	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	1,862	$27.67	1,252,295	cy	$249.62	$464,731	$0.37
24-5-04	Joint	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	279	$27.67	947,885	cy	$271.53	$75,834	$0.08
24-5-05	Joint	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	1,409	$27.67	947,885	cy	$249.62	$351,783	$0.37
24-5-06	Joint	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	772	$26.59	402,862	cy	$211.52	$163,371	$0.41
24-5-07	Joint	Revegetation	Revegetation	Miscellaneous	-	-	-	328	acres	-	$539,557	$1,647.00
24-4-04	Kayenta	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.80	83	$26.59	128,000	lineal feet	$85.39	$7,071	$0.06
24-5-01	Kayenta	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$1,469,184	$1,469,183.96
24-5-02	Kayenta	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.90	13	$27.67	9,777	cy	$274.57	$3,559	$0.36
24-5-02	Kayenta	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$80,170	$80,170
24-5-03	Kayenta	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	5,422	$27.67	3,647,388	cy	$249.62	$1,353,560	$0.37
24-5-04	Kayenta	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	819	$27.67	2,779,544	cy	$271.53	$222,373	$0.08
24-5-05	Kayenta	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	4,132	$27.67	2,779,544	cy	$249.62	$1,031,497	$0.37
24-5-06	Kayenta	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,121	$26.59	1,188,472	cy	$211.52	$448,591	$0.37
24-5-07	Kayenta	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,586,396	$1,647.00
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	16H Grader	$67.36	14,400	$27.67	-	-	$95.03	$1,368,455	$1,368,455
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	7,200	$21.30	-	-	$58.67	$422,453	$422,453
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	13,200	$21.30	-	-	$145.97	$1,926,837	$1,926,837
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	42,000	$21.30	-	-	$29.33	$1,231,706	$1,231,706
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	7,200	$21.30	-	-	$37.39	$269,227	$269,227
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	7,200	-	-	-	$11.49	$82,710	$82,710
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	4,800	-	-	-	$1.09	$5,232	$5,232
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	4,800	-	-	-	$1.62	$7,784	$7,784
24-5-48	Kayenta	Equipment Scheduling	Equipment Requirements	Diesel Floodlighting	$5.73	64,800	-	-	-	$5.73	$371,434	$371,434
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	232	$26.59	-	-	$211.52	$49,115	$49,115
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	769D Rear Dump Truck	$80.34	50	$23.94	-	-	$104.28	$5,255	$5,255
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	988F Loader Series II	$85.34	34	$27.67	-	-	$113.01	$3,797	$3,797
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	344	$27.67	-	-	$249.62	$85,971	$85,971
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.80	34	$26.59	-	-	$85.39	$2,869	$2,869
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.36	17	$27.67	-	-	$95.03	$1,597	$1,597
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	Drilltech D55SP	$196.78	12	$26.59	-	-	$223.37	$2,680	$2,680
24-5-49	Kayenta	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$88.67	295	$27.67	-	-	$116.34	$23,873	$23,873
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	859	$27.67	325,191	cy	$249.62	$184,583	$0.51
24-5-32	Kayenta Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	8,860	feet	-	$20,721	$2.98
24-5-33	Kayenta Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	189	$27.67	325,191	cy	$249.62	$48,731	$0.15
24-5-34	Kayenta Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	287	$27.67	975,574	cy	$271.53	$78,049	$0.08
24-5-35	Kayenta Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	7,077	$27.67	645	acres	$249.62	$1,768,508	$2,738.74
24-5-33	Kayenta Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	6,261	$26.59	1,664,979	cy	$211.52	$1,324,313	$0.80
24-5-37	Kayenta Ancillary Roads	Revegetation	Revegetation	Miscellaneous	-	-	-	645	acres	-	$1,062,327	$1,647.00
24-5-08	Kayenta Conveyors	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	88,166	feet	-	$4,085,989	$46.12
24-5-50	Kayenta Draglines and Shovels	Dragline and Shovel Removal	emble and Remove Draglines and S	Miscellaneous	-	-	-	-	-	-	$800,000	N/A
24-5-43	Kayenta Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Concrete Removal/Disposal	Miscellaneous	-	-	-	-	-	-	$12,139	$12,139
24-5-44	Kayenta Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	118	$27.67	11	acres	$249.62	$29,578	$2,739
24-5-44	Kayenta Environmental Monitoring Sites	Revegetation	Site Reclamation	Miscellaneous	-	-	-	17	acres	-	$27,870	$1,647
24-4-01	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,486	$1,389.37
24-4-02	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-03	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,164	$823.50
24-4-05	Kayenta Facilities	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-06	Kayenta Facilities	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0	$27.67	0	cy	$271.53	$0	N/A
24-4-07	Kayenta Facilities	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-5-14	Kayenta Landfarm Areas	Landfarm Removal	Haul Landfarm Material	637E P-P Scraper	$184.93	18	$26.59	3,000	cy	$211.52	$3,415	$1.14
24-5-15	Kayenta Landfarm Areas	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	4	$27.67	12,100	cy	$271.53	$968	$0.08
24-5-16	Kayenta Landfarm Areas	Grade Landfarm Area	Landfarm Grading	D11R Dozer	$221.95	84	$27.67	4,033	cy	$249.62	$23,387	$5.80
24-5-17	Kayenta Landfarm Areas	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	12	$26.59	6,050	cy	$211.52	$2,453	$0.41
24-5-18	Kayenta Landfarm Areas	Revegetation	Revegetation	Miscellaneous	-	-	-	2.5	acres	-	$4,118	$1,647.00
24-5-45	Kayenta Monitoring Wells	Reclaim Monitoring Wells	Well/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$57,000	$57,000

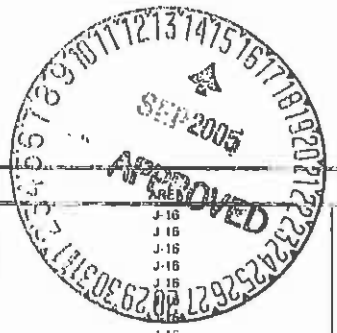


Table 24-1-7
WORKSHEET MASTER SUMMARY

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3.07	J-16	General Grading	General Grading	D11R Dozer	$221.95	2,523	$27.67	230	acres	$249.62	$629,910	$2,738.74
24-3.08	J-16	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	76	$26.59	58,580	lineal feet	$85.39	$6,472	$0.11
24-3.08	J-16	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	16	$26.59	9,600	lineal feet	$85.39	$1,405	$0.15
24-3.10	J-16	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	114	$23.94	21,150	cy	$104.28	$11,899	$0.56
24-3.10	J-16	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	139	$27.67	6,340	feet	$113.01	$15,722	$2.48
24-3.11	J-16	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	1,238	$26.59	845,850	cy	$211.52	$261,889	$0.41
24-3.12	J-16	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	2,381	$26.59	1,078,416	cy	$211.52	$503,632	$0.47
24-3.13	J-16	Revegetation	Revegetation	Miscellaneous	-	-	-	417	acres	-	$686,799	$1,647.00
24-3.14	J-16	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	11	acres	-	$17,294	$1,647.00
24-4.01	J-16	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,103	$27.67	201	acres	$249.62	$276,265	$1,389.37
24-4.02	J-16	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	143	$27.67	201	acres	$271.53	$38,918	$193.61
24-4.03	J-16	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	201	acres	-	$165,537	$823.50
24-4.05	J-16	General Grading at 50%	General Grading	D11R Dozer	$221.95	568	$27.67	103	acres	$249.62	$141,685	$1,389.37
24-4.06	J-16	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	74	$27.67	500,780	cy	$271.53	$20,032	$0.04
24-4.07	J-16	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	103	acres	-	$85,205	$823.50
24-3.02	J-19	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	6,009	-	-	-	-	$4,391,342	$4,391,342
24-3.03	J-19	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	12,240	$27.67	12,316,350	cy	$249.62	$3,055,370	$0.25
24-3.04	J-19	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	11,443	$27.67	13,817,220	cy	$249.62	$2,856,414	$0.21
24-3.05	J-19	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	1,542	$27.67	2,793,000	cy	$249.62	$384,929	$0.14
24-3.06	J-19	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	7,898	$27.67	6,812,151	cy	$249.62	$1,971,573	$0.29
24-3.07	J-19	General Grading	General Grading	D11R Dozer	$221.95	5,354	$27.67	488	acres	$249.62	$1,336,505	$2,738.74
24-3.08	J-19	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	215	$26.59	168,170	lineal feet	$85.39	$18,358	$0.11
24-3.09	J-19	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	29	$26.59	16,900	lineal feet	$85.39	$2,474	$0.15
24-3.10	J-19	Surface Stabilization	Load, haul and place riprap	769D Rear Dump Truck	$80.34	380	$23.94	54,750	cy	$104.28	$39,660	$0.72
24-3.10	J-19	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	361	$27.67	16,430	feet	$113.01	$40,743	$2.48
24-3.11	J-19	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	8,316	$26.59	4,337,948	cy	$211.52	$1,759,014	$0.41
24-3.12	J-19	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	21,323	$26.59	7,229,913	cy	$211.52	$4,510,293	$0.62
24-3.13	J-19	Revegetation	Revegetation	Miscellaneous	-	-	-	2,801	acres	-	$4,612,991	$1,647.00
24-3.14	J-19	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	167	acres	-	$274,555	$1,647.00
24-4.01	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,210	$27.67	403	acres	$249.62	$551,784	$1,369.37
24-4.02	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	287	$27.67	403	acres	$271.53	$78,011	$193.61
24-4.03	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	403	acres	-	$331,815	$823.50
24-4.05	J-19	General Grading at 50%	General Grading	D11R Dozer	$221.95	8,127	$27.67	1,482	acres	$249.62	$2,028,600	$1,369.37
24-4.06	J-19	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	1,056	$27.67	7,170,736	cy	$271.53	$286,842	$0.04
24-4.07	J-19	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	1,482	acres	-	$1,220,062	$823.50
24-6.01	J-21 Single Width	Phase I Exploration Bond	-	-	-	-	-	-	-	-	$284,100	$284,100.00
24-3.02	J-21 Single Width	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	1,995	-	-	-	-	$1,455,880	$1,455,880
24-3.03	J-21 Single Width	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	3,572	$27.67	3,594,413	cy	$249.62	$891,681	$0.25
24-3.04	J-21 Single Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	3,475	$27.67	4,195,560	cy	$249.62	$867,342	$0.21
24-3.05	J-21 Single Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	648	$27.67	1,173,330	cy	$249.62	$161,707	$0.14
24-3.06	J-21 Single Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,041	$27.67	2,623,178	cy	$249.62	$759,200	$0.29
24-3.07	J-21 Single Width	General Grading	General Grading	D11R Dozer	$221.95	2,194	$27.67	200	acres	$249.62	$547,748	$2,738.74
24-3.08	J-21 Single Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	201	$26.59	155,820	lineal feet	$85.39	$17,193	$0.11
24-3.09	J-21 Single Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	42	$26.59	24,430	lineal feet	$85.39	$3,576	$0.15
24-3.10	J-21 Single Width	Surface Stabilization	Load haul and place riprap	769D Rear Dump Truck	$80.34	445	$23.94	51,350	cy	$104.28	$46,427	$0.90
24-3.10	J-21 Single Width	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	338	$27.67	15,415	feet	$113.01	$38,228	$2.48
24-3.11	J-21 Single Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,656	$26.59	1,385,873	cy	$211.52	$561,883	$0.41
24-3.12	J-21 Single Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	9,536	$26.59	2,309,454	cy	$211.52	$2,017,015	$0.87
24-3.13	J-21 Single Width	Revegetation	Revegetation	Miscellaneous	-	-	-	895	acres	-	$1,473,530	$1,647.00
24-3.14	J-21 Single Width	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	157	acres	-	$257,756	$1,647.00
24-4.01	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	2,383	$27.67	431	acres	$249.62	$589,777	$1,389.37
24-4.02	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	307	$27.67	431	acres	$271.53	$83,386	$193.61
24-4.03	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	431	acres	-	$354,675	$823.50
24-4.05	J-21 Single Width	General Grading at 50%	General Grading	D11R Dozer	$221.95	14,805	$27.67	2,699	acres	$249.62	$3,695,786	$1,369.37
24-4.06	J-21 Single Width	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	1,924	$27.67	13,082,652	cy	$271.53	$522,529	$0.04
24-4.07	J-21 Single Width	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	2,699	acres	-	$2,222,540	$823.50
24-3.04	J-21 Double Width	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,891	$27.67	4,943,110	cy	$249.62	$1,220,809	$0.25
24-3.05	J-21 Double Width	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	729	$27.67	883,800	cy	$249.62	$181,895	$0.21
24-3.06	J-21 Double Width	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	985	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3.07	J-21 Double Width	General Grading	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-3.08	J-21 Double Width	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	87	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3.09	J-21 Double Width	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	9,000	lineal feet	$85.39	$1,317	$0.15
24-3.10	J-21 Double Width	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	89	$23.94	20,850	cy	$104.28	$9,294	$0.45
24-3.10	J-21 Double Width	Surface Stabilization	Load haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,260	feet	$113.01	$15,524	$2.48
24-3.11	J-21 Double Width	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,583	$26.59	1,337,118	cy	$211.52	$542,193	$0.41
24-3.12	J-21 Double Width	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	5,422	$26.59	2,228,526	cy	$211.52	$1,146,947	$0.51
24-3.13	J-21 Double Width	Revegetation	Revegetation	Miscellaneous	-	-	-	863	acres	-	$1,421,894	$1,647.00
24-3.14	J-21 Double Width	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	41	acres	-	$67,382	$1,647.00
24-5.19	J-3 Airport	Asphalt Removal	Asphalt Removal/Disposal	D11R Dozer - Ripper Equipped	$243.88	27	$27.67	9,068	cy	$271.53	$7,253	$0.80
24-5.20	J-3 Airport	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	27	$27.67	90,858	cy	$271.53	$7,253	$0.08
24-3.02	J-7	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$198.78	317	-	-	-	-	$232,424	$232,424
24-3.03	J-7	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	500	$27.67	786,900	cy	$249.62	$124,934	$0.16

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-4-04	Black Mesa	Surface Stabilization at 50%	Grade Terraces	D7R Dozer	$58.80	1.9	$26.59	3,000	lineal feet	$85.39	$186	$0.06
24-5-01	Black Mesa	Facilities Demolition	Demolish Facilities	Miscellaneous	-	-	-	-	ls	-	$2,108,472	$2,108,471.50
24-5-02	Black Mesa	Concrete Removal	Concrete Removal	D11R Dozer - Ripper Equipped	$246.80	7	$27.67	5,152	cy	$274.57	$1,878	$0.36
24-5-02	Black Mesa	Concrete Removal	Concrete Disposal	Miscellaneous	-	-	-	-	-	-	$42,246	$42,246
24-5-03	Black Mesa	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	2,214	$27.67	1,489,484	cy	$249.62	$552,758	$0.37
24-5-04	Black Mesa	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	336	$27.67	1,140,304	cy	$271.53	$91,228	$0.08
24-5-05	Black Mesa	Grade Facilities Areas	Facilities Area Grading	D11R Dozer	$221.95	1,695	$27.67	1,140,304	cy	$249.62	$423,170	$0.37
24-5-06	Black Mesa	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	878	$26.59	486,377	cy	$211.52	$185,795	$0.37
24-5-07	Black Mesa	Revegetation	Revegetation	Miscellaneous	-	-	-	398	acres	-	$651,981	$1,647.00
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	16H Grader	$67.36	9,600	$27.67	-	-	$95.03	$912,303	$912,303
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Truck Tractor	$37.37	4,800	$21.30	-	-	$58.67	$281,635	$281,635
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Water Truck	$124.67	8,800	$21.30	-	-	$145.97	$1,284,558	$1,284,558
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Service Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Flatbed Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Light Duty Diesel Crew	$8.03	28,000	$21.30	-	-	$29.33	$821,137	$821,137
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Welding/Supply Truck	$16.09	4,800	$21.30	-	-	$37.39	$179,485	$179,485
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Equipment Trailer	$11.49	4,800	-	-	-	$11.49	$55,140	$55,140
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Parts Trailer	$1.09	3,200	-	-	-	$1.09	$3,488	$3,488
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Office Trailer	$1.62	3,200	-	-	-	$1.62	$5,176	$5,176
24-5-48	Black Mesa	Equipment Scheduling	Equipment Requirements	Diesel Floodlighting	$5.73	43,200	-	-	-	$5.73	$247,822	$247,822
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	637E P-P Scraper	$184.93	155	$26.59	-	-	$211.52	$32,743	$32,743
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	769D Rear Dump Truck	$80.34	34	$23.94	-	-	$104.28	$3,504	$3,504
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	988F Loader Series II	$85.34	22	$27.67	-	-	$113.01	$2,531	$2,531
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D11R Dozer	$221.95	230	$27.67	-	-	$249.62	$57,314	$57,314
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	D7R Dozer	$58.80	22	$26.59	-	-	$85.39	$1,913	$1,913
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	16H Grader	$67.36	11	$27.67	-	-	$95.03	$1,064	$1,064
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	Drltech D55SP	$196.76	8	$26.59	-	-	$223.37	$1,787	$1,787
24-5-49	Black Mesa	On-Site Mobilization	Interior Mobilization Hours	LS-208H Linkbelt	$88.67	137	$27.67	-	-	$116.34	$15,915	$15,915
24-5-32	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	370	$27.67	182,647	cy	$249.62	$92,429	$0.51
24-5-33	Black Mesa Ancillary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	4,840	feet	-	$13,814	$2.86
24-5-34	Black Mesa Ancillary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	102	$27.67	182,647	cy	$249.62	$25,418	$0.14
24-5-35	Black Mesa Ancillary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	161	$27.67	547,942	cy	$271.53	$43,837	$0.08
24-5-36	Black Mesa Ancillary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	3,975	$27.67	362	acres	$249.62	$992,178	$2,738.74
24-5-37	Black Mesa Ancillary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,310	$26.59	935,154	cy	$211.52	$700,061	$0.75
24-5-08	Black Mesa Conveyors	Revegetation	Revegetation	Miscellaneous	-	-	-	362	acres	-	$596,868	$1,647.00
24-5-50	Black Mesa Draglines	Conveyor Demolition	Demolish Conveyor	Miscellaneous	-	-	-	5,244	feet	-	$241,826	$46.12
24-5-43	Black Mesa Environmental Monitoring Sites	Dragline Removal	Disassemble and Remove Dragline	Miscellaneous	-	-	-	-	-	-	$300,000	N/A
24-5-44	Black Mesa Environmental Monitoring Sites	Off Permit Environmental Monitoring Sites	Site Reclamation	Concrete Removal/Disposal	-	-	-	-	-	-	$8,093	$8,093
24-5-44	Black Mesa Environmental Monitoring Sites	Grade Reclaimed Area	Site Reclamation	D11R Dozer	$221.95	79	$27.67	7	acres	$249.62	$19,719	$2,738.74
24-5-45	Black Mesa Monitoring Wells	Revegetation	Site Reclamation	Miscellaneous	-	-	-	11	acres	-	$18,446	$1,647.00
24-5-21	Black Mesa Permanent Roads	Reclaim Monitoring Wells	Well/Site Reclamation	Miscellaneous	-	-	-	-	-	-	$38,000	$38,000
24-5-22	Black Mesa Permanent Roads	Dozing to Narrow Road	Doze Roads	D11R Dozer	$221.95	47	$27.67	79,582	cy	$249.62	$11,888	$0.15
24-5-23	Black Mesa Permanent Roads	Surface Ripping to Narrow Road	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	68	$27.67	229,666	cy	$271.53	$18,378	$0.08
24-5-24	Black Mesa Permanent Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	1,041	$27.67	95	acres	$249.62	$259,939	$2,738.74
24-5-25	Black Mesa Permanent Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	939	$26.59	244,999	cy	$211.52	$198,691	$0.81
24-5-09	Black Mesa Powerlines	Revegetation	Revegetation	Miscellaneous	-	-	-	95	acres	-	$156,320	$1,647.00
24-5-26	Black Mesa Primary Roads	Facilities-Powerlines	Remove Powerlines	Miscellaneous	-	-	-	123,901	feet	-	$140,762	$1.14
24-5-26	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	D11R Dozer	$221.95	432	$27.67	213,060	cy	$249.62	$107,829	$0.51
24-5-27	Black Mesa Primary Roads	Culvert Removal	Culvert Removal/Disposal	Miscellaneous	-	-	-	5,040	feet	-	$14,014	$2.78
24-5-28	Black Mesa Primary Roads	Surfacing Removal	Surfacing Removal/Disposal	D11R Dozer	$221.95	204	$27.67	256,719	cy	$249.62	$51,037	$0.20
24-5-29	Black Mesa Primary Roads	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	227	$27.67	770,157	cy	$271.53	$61,615	$0.08
24-5-30	Black Mesa Primary Roads	Grade Ripped Areas	Grading	D11R Dozer	$221.95	4,305	$27.67	398	acres	$249.62	$1,089,494	$2,738.74
24-5-31	Black Mesa Primary Roads	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	3,861	$26.59	1,026,876	cy	$211.52	$816,770	$0.80
24-5-10	Black Mesa Scoria Pits	Revegetation	Revegetation	Miscellaneous	-	-	-	398	acres	-	$655,180	$1,647.00
24-5-11	Black Mesa Scoria Pits	Surface Ripping	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	105	$27.67	355,014	cy	$271.53	$28,402	$0.08
24-5-12	Black Mesa Scoria Pits	Grade Scoria Pit Area	Scoria Pit Grading	D11R Dozer	$221.95	528	$27.67	355,014	cy	$249.62	$131,747	$0.37
24-5-13	Black Mesa Scoria Pits	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	475	$26.59	189,341	cy	$211.52	$100,400	$0.53
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Revegetation	Revegetation	Miscellaneous	-	-	-	73	acres	-	$120,807	$1,647.00
24-5-38	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	D11R Dozer	$221.95	357	$27.67	256,052	cy	$249.62	$89,083	$0.35
24-5-39	Black Mesa Water Storage and Sedimentation Ponds	Clean Out Sediment	Sediment Removal	LS-208H Linkbelt	$88.67	552	$27.67	39,393	cy	$116.34	$64,218	$1.63
24-5-40	Black Mesa Water Storage and Sedimentation Ponds	Embankment Removal	Grade Embankment Into Basin	D11R Dozer	$221.95	819	$27.67	587,408	cy	$249.62	$204,385	$0.35
24-5-41	Black Mesa Water Storage and Sedimentation Ponds	Grade Pond Areas	Grading	D11R Dozer	$221.95	2,430	$27.67	222	acres	$249.62	$606,686	$2,738.74
24-5-42	Black Mesa Water Storage and Sedimentation Ponds	Topsoil Replacement	Haul and Place Topsoil	637E P-P Scraper	$184.93	2,150	$26.59	571,617	cy	$211.52	$454,818	$0.80
24-4-01	J-I/N-6	Revegetation	Revegetation	Miscellaneous	-	-	-	222	acres	-	$364,843	$1,647.00
24-4-02	J-I/N-6	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-03	J-I/N-6	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.66	0	$27.67	0	acres	$271.53	$0	N/A
24-3-02	J-18	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-3-03	J-18	Highwall Reduction	Cast/Blast Highwall	Drltech D55SP	$196.76	932	-	-	-	-	$880,894	$880,894
24-3-04	J-18	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	1,042	$27.67	1,048,088	cy	$249.62	$260,004	$0.25
24-3-05	J-18	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,972	$27.67	2,381,300	cy	$249.62	$492,283	$0.21
24-3-06	J-18	Backfill and Grade Ramps	Doze Back Two Spoils	D11R Dozer	$221.95	272	$27.67	493,370	cy	$249.62	$67,998	$0.14
			Backfill/Grade Ramps	D11R Dozer	$221.95	824	$27.67	711,000	cy	$249.62	$205,778	$0.29

Tbl. I-7
WORKSHEET MASTER SUMMARY

TABLE	AREA	PROJECT	TASK	EQUIPMENT	EQUIPMENT UNIT COST	HOURS	LABOR COST	QUANTITY	UNITS	HOURLY COST	TOTAL COST	UNIT COST
24-3-05	N-14E	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	288	$27.67	518,610	cy	$249.62	$71,502	$0.14
24-3-06	N-14E	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	193	$27.67	166,200	cy	$249.62	$48,102	$0.29
24-3-07	N-14E	General Grading	General Grading	D11R Dozer	$221.95	230	$27.67	21	acres	$249.62	$57,514	$2,738.74
24-3-08	N-14E	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	32	$26.59	24,940	lineal feet	$85.39	$2,755	$0.11
24-3-09	N-14E	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	8	$26.59	4,520	lineal feet	$85.39	$662	$0.15
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	51	$23.94	12,100	cy	$104.28	$5,285	$0.44
24-3-10	N-14E	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	104	$27.67	4,750	feet	$113.01	$11,779	$2.48
24-3-11	N-14E	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	419	$26.59	218,694	cy	$211.52	$88,678	$0.41
24-3-12	N-14E	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	554	$26.59	227,808	cy	$211.52	$117,244	$0.51
24-3-13	N-14E	Revegetation	Revegetation	Miscellaneous	-	-	-	141	acres	-	$232,580	$1,647.00
24-3-14	N-14E	Revegetation	Revegetation of Topsoil Stockpile	Miscellaneous	-	-	-	19	acres	-	$30,799	$1,647.00
24-4-01	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	194	$27.67	35	acres	$249.62	$48,486	$1,389.37
24-4-02	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	25	$27.67	35	acres	$271.53	$6,857	$193.61
24-4-03	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	35	acres	-	$29,164	$823.50
24-4-05	N-14E	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$30	$1,389.37
24-4-06	N-14E	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0.0	$27.67	106	cy	$271.53	$4	$0.04
24-4-07	N-14E	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$18	$823.50
24-4-01	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	435	$27.67	78	acres	$249.62	$108,657	$1,389.37
24-4-02	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	57	$27.67	78	acres	$271.53	$15,362	$193.61
24-4-03	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	78	acres	-	$65,343	$823.50
24-4-05	N-2	General Grading at 50%	General Grading	D11R Dozer	$221.95	0	$27.67	0	acres	$249.62	$0	N/A
24-4-06	N-2	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	0	$27.67	0	cy	$271.53	$0	N/A
24-4-07	N-2	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	0	acres	-	$0	N/A
24-3-02	N-6	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$196.78	1,928	-	-	-	-	$1,410,110	$1,410,110
24-3-03	N-6	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	4,056	$27.67	4,402,236	cy	$249.62	$1,012,946	$0.23
24-3-04	N-6	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	4,368	$27.67	3,791,230	cy	$249.62	$1,090,443	$0.29
24-3-05	N-6	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	567	$27.67	1,026,520	cy	$249.62	$141,474	$0.14
24-3-06	N-6	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	3,394	$27.67	2,927,742	cy	$249.62	$847,347	$0.29
24-3-07	N-6	General Grading	General Grading	D11R Dozer	$221.95	625	$27.67	57	acres	$249.62	$156,108	$2,738.74
24-3-08	N-6	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	239	$26.59	185,020	lineal feet	$85.39	$20,441	$0.11
24-3-09	N-6	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	49	$26.59	28,800	lineal feet	$85.39	$4,216	$0.15
24-3-10	N-6	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	396	$23.94	59,250	cy	$104.28	$41,322	$0.70
24-3-10	N-6	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	390	$27.67	17,780	feet	$113.01	$44,091	$2.48
24-3-11	N-6	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	0	$26.59	0	cy	$211.52	$0	N/A
24-3-12	N-6	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	3,762	$26.59	814,279	cy	$211.52	$800,085	$0.98
24-3-13	N-6	Revegetation	Revegetation	Miscellaneous	-	-	-	505	acres	-	$831,271	$1,647.00
24-3-14	N-6	Revegetation	Revegetation of Topsoil Stockpiles	Miscellaneous	-	-	-	77	acres	-	$126,984	$1,647.00
24-4-01	N-7/8	General Grading at 50%	General Grading	D11R Dozer	$221.95	99	$27.67	18	acres	$249.62	$24,649	$1,389.37
24-4-02	N-7/8	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	13	$27.67	18	acres	$271.53	$3,485	$193.61
24-4-03	N-7/8	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	18	acres	-	$14,823	$823.50
24-3-02	N-9	Highwall Reduction	Cast/Blast Highwall	Drilltech D55SP	$196.78	1,027	-	-	-	-	$750,946	$750,946
24-3-03	N-9	Backfill Mine Pits	Doze Highwall	D11R Dozer	$221.95	884	$27.67	1,012,500	cy	$249.62	$220,640	$0.22
24-3-04	N-9	Backfill Mine Pits	Doze First Two Spoils	D11R Dozer	$221.95	1,639	$27.67	2,473,670	cy	$249.62	$409,103	$0.17
24-3-05	N-9	Backfill Mine Pits	Doze Back Two Spoils	D11R Dozer	$221.95	489	$27.67	822,330	cy	$249.62	$122,051	$0.15
24-3-06	N-9	Backfill and Grade Ramps	Backfill/Grade Ramps	D11R Dozer	$221.95	965	$27.67	832,091	cy	$249.62	$240,824	$0.29
24-3-07	N-9	General Grading	General Grading	D11R Dozer	$221.95	5,464	$27.67	498	acres	$249.62	$1,363,693	$2,738.74
24-3-08	N-9	Surface Stabilization	Grade Terraces	D7R Dozer	$58.80	87	$26.59	52,000	lineal feet	$85.39	$5,745	$0.11
24-3-09	N-9	Surface Stabilization	Grade Drainages/Downdrains	D7R Dozer	$58.80	15	$26.59	9,000	lineal feet	$85.39	$1,317	$0.15
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	769D Rear Dump Truck	$80.34	42	$23.94	20,850	cy	$104.28	$4,422	$0.21
24-3-10	N-9	Surface Stabilization	Load, haul, and place riprap	988F Loader Series II	$85.34	137	$27.67	6,260	feet	$113.01	$15,524	$2.48
24-3-11	N-9	Topsoil/Suitable Material Replacement	Suitable Material Placement	637E P-P Scraper	$184.93	2,674	$26.59	1,499,014	cy	$211.52	$607,842	$0.41
24-3-12	N-9	Topsoil/Suitable Material Replacement	Topsoil Replacement	637E P-P Scraper	$184.93	11,605	$26.59	2,498,357	cy	$211.52	$2,454,747	$0.98
24-3-13	N-9	Revegetation	Revegetation	Miscellaneous	-	-	-	868	acres	-	$1,594,056	$1,647.00
24-3-14	N-9	Revegetation	Revegetation of Topsoil Stockpiles	Miscellaneous	-	-	-	77	acres	-	$126,984	$1,647.00
24-4-01	N-9	General Grading at 50%	General Grading	D11R Dozer	$221.95	1,223	$27.67	223	acres	$249.62	$305,370	$1,389.37
24-4-02	N-9	Surface Ripping at 50%	Dozer Ripping	D11R Dozer - Ripper Equipped	$243.88	159	$27.67	223	acres	$271.53	$43,175	$193.61
24-4-03	N-9	Revegetation at 50%	Revegetation	Miscellaneous	-	-	-	223	acres	-	$183,841	$823.50
				TOTAL		672,279	hours				$142,251,397	

Table 24-1-8
FUEL TAX SUMMARY TABLE
Black Mesa and Kayenta Mines

Navajo fuel Tax

	Gal/Hr	Wages/Hr	Black Mesa Hours	Black Mesa Total Gallons
637 E	34	$26.59	17,497	602,181
769D Truck	10	$23.94	641	6,159
988F Loader	13	$27.67	608	7,976
D11R Dozer	28	$27.67	35,443	1,005,344
D11R Ripping	28	$27.67	1,070	30,340
D7R Dozer	9	$26.59	437	3,736
D55SP	20	$27.67	2,253	44,128
LS-208 H	9	$27.67	689	6,076
16H Grader	9	$27.67	9,611	83,564
Truck tractor	10	$21.30	4,800	46,391
Water Truck	18	$21.30	8,800	162,739
Service Truck	4	$21.30	4,800	19,490
Welding Truck	4	$21.30	4,800	19,490
TOTAL HOURS			91,449	
TOTAL GALLONS				2,037,614

	Black Mesa
Tax per Gallon	$0.18

TOTAL FUEL TAX	$366,771

ATTACHMENT 24-2

AREA/VOLUME INPUT TABLES

- Maximum Length of Open Pits Within Each Year
- Bonding Area Categories
- Pit Volume Summary (2001 Reclamation)
- Ramp Volume and Grading Summary
- Final Pit Reclamation Areas
- Surface Stabilization Summary
- Topsoil/Suitable Material Handling Summary
- Facility Volumes
- Scoria Pit Reclamation
- Water and Sedimentation Ponds

Table 24-2-1
MAXIMUM LENGTH OF OPEN PITS WITHIN EACH YEAR (FT)
Black Mesa and Kayenta Mines

Active Mine Area	Year					Worst-case Pit Lengths
	2006	2007	2008	2009	2010	
Black Mesa						
J-7	3,500	1,500	1,500	1,500	1,500	
N-6	13,400	12,700	9,800	9,800	9,800	
Subtotal	16,900	14,200	11,300	11,300	11,300	
Kayenta						
J-16	7,700	7,700	7,700	7,700	7,700	
J-19&J-19 West	35,300	39,900	33,500	31,800	31,800	
J-21 Single Width	14,500	16,000	16,000	16,000	16,000	
J-21 Double Width	8,300	8,300	8,300	8,300	8,300	
N-9	9,700	8,300	8,300	7,600	7,600	
N-11	8,450	7,000	7,000	7,000	7,000	
N-14	6,800	6,800	6,800	6,800	6,800	
N-14E	6,800	6,800	6,800	6,800	6,800	
Subtotal	97,550	100,800	94,400	92,000	92,000	
Total:	114,450	115,000	105,700	103,300	103,300	

Notes:

1. Shaded area represents "worst-case" pit lengths.
2. All dimensions for J-16 and N-14 are based on 2007 as the "worst case" year per 2006-2010 Bond.
3. Lengths measured from annual blocks presented on revised Drawing No. 85210 & 89800
4. Until Phase 1 Bond Release, J-16, J19-RA Pond, N-11, N-14 and N-14E pit lengths are included even though PWCC will have completed the Final Pit Backfilling & Grading. Dimensions for these areas are based on 1997 as "worst case" year per 1995-2000 Bond.
5. Double wide pits were doubled in length for purposes of measuring pit length.

References: Mine Plan Map (Drawing 85210) and Bonding Map (Drawing 89800)

Table 24-2-2
BONDING AREA CATEGORIES
Black Mesa and Kayenta Mines

Mine Area	Category (acres)						
	I	II	IIA	III	IV	V	VI
J-1/N-6	[redacted]	0	0	2266	165	32	0
J-7	[redacted]	0	0	1186	267	11	0
J-27	[redacted]	0	0	112	200	15	0
Black Mesa Mine Facilities	[redacted]	0	0	318	0	178	0
Black Mesa Mine Subtotal	[redacted]	0	0	3,882	632	236	0
J-16	[redacted]	201	103	1053	0	12	0
J-19	[redacted]	403	1482	6	0	0	0
J-21 Single Width	[redacted]	431	2699	2	0	4	0
J-21 Double Width	[redacted]	0	0	0	0	0	0
N-1	[redacted]	188	0	58	1066	2	310
N-2	[redacted]	79	0	53	363	4	701
N-7/N-8	[redacted]	18	0	1064	0	0	0
N-9	[redacted]	223	0	23	0	0	0
N-10	[redacted]	20	0	198	1	1	0
N-11	[redacted]	93	89	54	0	108	0
N-14	[redacted]	280	0	981	0	47	0
N-14E	[redacted]	35	0	187	0	0	0
Kayenta_FAC	[redacted]	286	0	51	0	396	0
Kayenta Mine Subtotal	[redacted]	2,258	4,373	3,730	1,430	574	1,011
J-3	[redacted]	0	0	259	712	151	0
MCW_FAC	[redacted]	0	0	93	0	45	0
Joint Facilities Subtotal	[redacted]	0	0	352	712	196	0
Total	[redacted]	2,258	4,373	7,964	2,775	1,006	1,011

Notes:
I = Permanent Program 2007 final pit reclamation area(s)
II = Permanent Program Area - Revegetated except for Mine Support Facilities (7/6/90-12/31/07). Includes acres for IIA area
IIA = Permanent Program Area - Reclaimed areas which have minimal or no mine support facilities (e.g. these areas are bonded in Attachment 24-4) and which have not been approved for reclamation liability release (i.e. Phase I, II, or III Bond Release)
III = Interim Program Areas (2/1/82-7/6/90 - Kayenta Mine); (2/1/82 to Present - Black Mesa Mine)
IV = Prelaw Areas disturbed prior to 12/17/77
V = Permanent Program lands under major facilities areas
Kayenta Mine Facilities include J-28, N-7/N-8 and Silo Areas.
VI = Land Approved for Release

Reference: Bonding Map (Drawing 89800)

Table 24-2-3
PIT VOLUME SUMMARY (WORST CASE)
Black Mesa and Kayenta Mines

Active Mine Area	Pit Length (ft)	Highwall Reduction (sf)	Highwall Reduction (cy)	Swelled Highwall Reduction (cy)	2 Spoils Into Pit (sf)	2 Spoils Into Pit (cy)	Open Pit (sf)	Open Pit (cy)	2 Spoils To Grade (sf)	2 Spoils To Grade (cy)	4 Spoils Width (ft)
J-7	6,550	3,460	839,350	1,049,200	3,558	863,140	7,590	1,841,280	730	177,090	620
N-6	16,900	7,502	4,695,700	5,869,650	6,057	3,791,230	15,369	9,619,860	1,640	1,026,520	790
J-16	7,700	3,920	1,117,950	1,397,450	8,350	2,381,300	13,250	3,778,700	1,730	493,370	590
J-19*	39,900	8,890	13,137,450	16,421,800	9,350	13,817,220	20,460	30,235,330	1,890	2,793,000	895
J-21 SW*	16,000	6,470	3,834,050	4,792,550	7,080	4,195,560	15,170	8,989,630	1,980	1,173,330	700
J-21 DW	8,300	0	0	0	16,080	4,943,110	15,645	4,809,390	2,875	883,800	985
N-11	8,450	0	0	0	16,080	5,032,440	15,645	4,896,310	2,875	899,770	980
N-9	9,000	3,240	1,080,000	1,350,000	7,421	2,473,670	11,039	3,679,670	2,467	822,330	633
N-14[1]	6,800	N/A	N/A	N/A	44,800	5,641,480	44,800	5,641,480	1,900	239,260	680
N-14E[2]	6,800	N/A	N/A	N/A	7,900	994,810	7,900	994,810	4,120	518,810	510

Notes: * - Includes box cut spoils
J-19=15,700'; J-21=4,000' of the pit length is assumed to be box cut spoil grading
1. N-14 has 6 spoils into pit and uses one-half the pit length per 1995-2000 Bond.
2. N-14E has 4 spoils to grade and uses one-half the pit length per 1995-2000 Bond.

References: Mine Plan Map (Drawing 85210) and Overburden/Interburden Isopachs and Range Diagrams for each active mining area.

Table 24-2-4
RAMP VOLUME AND GRADING SUMMARY
Black Mesa and Kayenta Mines

Active Mine Area	Number of Ramps	Pit Depth (ft)	Cubic Yards/ Ramp[1] (cy)	Total Ramp Volume (cy)	Grading Area Beyond Fourth Spoil Pile Limit			
					Length (ft)	Height (ft)	Area/Ramp (sf)	Total For Area (acres)
J-7	3	104	265,675	797,025	150	11	19,725	1
N-6	9	150	325,305	2,927,742	600	70	186,000	38
J-16	2		355,500	711,000	540	35	110,700	5
J-19	18	191	378,453	6,812,151	600	49	148,200	61
J-21 Single Width	8	152	327,897	2,623,178	560	35	114,800	21
J-21 Double Width	2	220	416,045	832,091	600	77	198,600	9
N-11	2	220	416,045	832,091	600	77	198,600	9
N-9	6	147	321,416	1,928,495	600	30	114,000	16
N-14	4		883,900	3,535,600	320	82	110,624	10
N-14E	3		55,400	166,200	171	6	19,973	1
Total	57		3,745,637	21,165,573	4,741	471	1,221,222	173

Notes:

1. Ramp volume based on the formula $V=1/2(wh*l)+2(1/3h^2*l)$, where w=100' width, l=1000' length, and h= 70% of average pit depth.
2. Within four spoil pile limit, ramp surface grading is addressed by spoil grading activities.
3. Ramp grading area beyond fourth spoil pile grading limit based on the formula A=l(w+3h), where l=measured length, w=100' width, and h= 70% of ramp depth at fourth spoil pile limit. If length (l) exceeds 600', grading for the remaining ramp length is covered under one of the road reclamation categories (primary or ancillary roads).

Reference: Mine Plan Map (Drawing 85210)

Table 24-2-5
FINAL PIT RECLAMATION AREAS (CATEGORY I)
Black Mesa and Kayenta Mines

Active Mine Area	Pit Length[1] (ft)	Highwall Reduction Width (ft)	Four Spoil Widths (ft)	Subtotal Pit Area[2] (ac)	Advance Topsoil Stripping Area[3] (ac)	Miscellanous Grading Area[4] (ac)	Total Pit Area5 (ac)
J-7	6,550	175	518	124	89	0	213
N-6	16,900	234	790	448	0	57	505
J-16	7,700	270	590	175	12	230	417
J-19	39,900	275	895	1,191	1,122	488	2,801
J-21 SW	16,000	220	700	386	309	200	895
J-21 DW	8,300	N/A	985	212	0	0	212
N-11	8,450	N/A	980	215	0	648	863
N-9	9,000	234	633	208	262	498	968
N-14	6,800	N/A	680	147	0	42	189
N-14E	6,800	N/A	510	120	0	21	141
Total	126,400	1,408	7,281	3,226	1,794	2,184	7,204

Notes:

1. Pit widths are shown on the 24-3-1 worksheets:
Pit with portions or all of the pit length with double pit widths, (260 feet wide): J-21=8,300'; N-11=4,225'; N-14=3,400'; N-14E=3,400'; all of the other pit length is assumed single pit width = 130 feet wide.
2. The Subtotal Pit Area includes the pit area, highwall reduction area, four spoil grading area and any boxcut areas, and is based on the equation ((Highwall Reduction Width + Pit Width + Four Spoil Widths)*Length)/43,560 sf/ac.
3. The advance topsoil area is determined by the equation: ((1,500' - Highwall Reduction)*Length)/43,560 sf/ac. No grading is required in this area.
4. The Miscellanous Grading Area was determined for each active mine area from the Mine Plan Map.
5. The Total Pit Area includes the categories under "Subtotal Pit Area" (above), the Advance Topsoil Stripping Area and the Miscellaneous Grading Area.

References: Mine Plan Map (Drawing 85210) and Range Diagrams for each active mining area.

Table 24-2-6
SURFACE STABILIZATION SUMMARY
Black Mesa and Kayenta Mines

Active Mine Area	Main Reclamation Channels		Downdrain Channels		Terrace Channels		Total Riprap (cy)	Average Haul Distance (ft)	Average Grade (%)
	Length (ft)	Riprap (cy)	Length (ft)	Riprap (cy)	Length (ft)	Area (ac)			
J-7	6,550	4,350	15,200	25,350	75,400	213	29,700	3,500	3
N-6	16,900	11,250	28,800	48,000	185,020	505	59,250	3,000	2
J-16	7,700	5,150	9,600	16,000	58,580	417	21,150	3,500	-4
J-19	39,900	26,600	16,900	28,150	166,170	2,801	54,750	4,500	1
J-21 Single Width	16,000	10,650	24,430	40,700	155,620	895	51,350	3,300	3
J-21 Double Width	8,300	5,550	12,670	21,100	80,730	212	26,650	1,700	3
N-9	8,800	5,850	9,000	15,000	52,000	968	20,850	2,500	0
N-11	8,450	5,650	11,300	18,850	129,920	863	24,500	2,500	-3
N-14	6,800	4,550	6,780	11,300	37,410	198	15,850	2,100	-1
N-14E	6,800	4,550	4,520	7,550	24,940	132	12,100	1,400	0
Total	126,200	84,150	139,200	232,000	965,790	7,204	316,150		

References: Chapter 26, Surface Stabilization Plan and Bond Map (Drawing 89800)

Table 24-2-7
TOPSOIL AND SUITABLE MATERIAL HANDLING SUMMARY
Black Mesa and Kayenta Mines

Mine Area	Topsoil Distribution Area (ac)	Volume (ac-ft)	Volume (cy)	Average Topsoil Haul Distance (ft)	Average Grade (%)	Area Requiring Additional 2.4' (ac)	Additional Volume (ac-ft)	Additional Volume (cy)
J-7	213	213	343,240	4,150	2.5	0	0	0
N-6	505	505	814,279	3,950	2.5	0	0	0
J-16	417	667	1,076,416	1,400	-4.0	167	400	645,850
J-19	2,801	4,481	7,229,913	1,900	2.5	1,120	2,689	4,337,948
J-21SW	895	1,431	2,309,454	3,500	2.5	358	859	1,385,673
J-21DW	212	340	548,415	3,500	2.5	85	204	329,049
N-11	863	1,381	2,228,526	1,200	2.5	345	829	1,337,116
N-9.	968	1,549	2,498,357	5,300	2.5	387	929	1,499,014
N-14	189	302	487,201	4,400	-1.0	75	181	292,321
N-14E	141	141	227,806	1,200	1.5	56	136	218,694

Notes:
1. The topsoil distribution area includes ramp areas that extent beyond the four spoil pile grading limit. These areas will require placement of 1.6' of topsoil (except the J-7, and N-6 areas, which will require only 1' for Initial Program Lands).
2. Average topsoil haul distance and grade measured from Bonding Map.
3. All Permanent Program regraded areas are conservatively assumed to require 2.4' of additional suitable material. Suitable material borrow sources assumed to exist on highwall side of pit, with average haul distance of 700'.

References: Bonding Map (Drawing 89800), Table 24.2.4, Ramp Volume and Grading Summary, and Table 24-2-2, Final Pit Reclamation Areas

Table 24-2-8
FACILITY VOLUMES
Footings, Foundations, Parking, and Storage Areas
Black Mesa and Kayenta Mines

Area	Area (ac)	Concrete Area (ac)	Gravel Surface Area (ac)	Gravel Volume (cy)	Ripping Area[1] (ac)	Ripping Vol[2] (cy)	Trench Vol[3] (cy)	Trench Area[4] (ac)	Borrow Volume For Concrete[5] (cy)	Borrow Volume Remaining Facilities Area[6] (cy)	Revegetation Concrete Borrow Area[7] (ac)	Revegetation Remaining Facilities Borrow Area[7] (ac)
Black Mesa	236	4.79	231	372,373	236	1,140,304	372,373	57.7	30,910	465,467	6.4	96.2
Kayenta	574	9.09	565	911,850	574	2,779,544	911,850	141.3	58,660	1,139,812	12.12	235.5
Joint	196	1.79	194	313,074	196	947,885	313,074	48.5	11,550	391,342	2.39	80.9
Total:	1,006											

Notes:
1. Gravel volume based on 1' depth.
2. Ripping volume based on 3' ripping depth.
3. Trench volume equals gravel disposal volume.
4. Reflects 4' excavation depth; excavated and then replaced for burial of gravel materials.
5. Reflects 4' removal and replacement depth.
6. Reflects 1.25' replacement depth.
7. Reflects 3' borrow depth.

Reference: Bonding Map (Drawing 89800), Category V, Table 24-2-2

Table 24-2-9
SCORIA PIT RECLAMATION
Black Mesa and Kayenta Mines

Location	Area (ac)	Disturbed		Reclaimed		Undisturbed	
		%	acres	%	acres	%	acres
J-7	149.5	0	0.0	0	0.0	100	149.5
J-27	167.3	0	0.0	0	0.0	100	167.3
N-5	97.8	75	73.4	0	0.0	25	24.5
N-10	3.3	100	3.3	0	0.0	0	0.0
Total	418		77		0		341

Reference: Bonding Map (Drawing 89800)

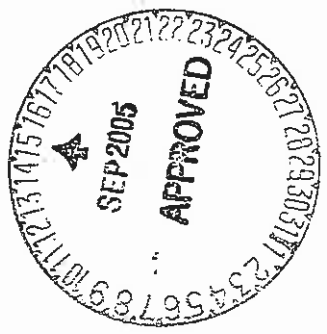


Table 24-2-10
WATER AND SEDIMENTATION PONDS
Black Mesa and Kayenta Mines

Kayenta Mine			
Pond	Sediment Cleanout Required?	Embankment Removal Required?	Topsoil Spreading Required?
J16-A	Y	N	N
J16-D	Y	Y	Y
J16-E	Y	Y	Y
J16-F	Y	Y	Y
J16-G	Y	N	N
J16-L	Y	N	N
J19-A	Y	Y	Y
J19-B	Y	Y	Y
J19-D	Y	Y	Y
J19-E	Y	Y	Y
J19-RA	Y	Y	Y
J19-RB	Y	N	N
J21-A	Y	N	N
J21-A1	Y	Y	Y
J21-C	Y	N	N
J21-C2	Y	Y	Y
J21-D	Y	Y	Y
J21-E	Y	Y	Y
J21-F	Y	Y	Y
J21-F1	Y	Y	Y
J21-G	Y	Y	Y
J21-G1	Y	Y	Y
J21-H	Y	Y	Y
J21-H1	Y	Y	Y
J28-B	Y	Y	Y
J28-C	Y	Y	Y
J28-D	Y	Y	Y
J28-G	Y	Y	Y
J28-SL	Y	Y	Y
J7-JR	Y	N	N
KM-A3	Y	Y	Y
KM-B	Y	Y	Y
KM-C	Y	Y	Y
KM-D	Y	Y	Y
KM-E	Y	Y	Y
KM-E1	Y	Y	Y
KM-FWP	Y	Y	Y
KM-TPB	Y	Y	Y
KM-TPB1	Y	Y	Y
N9-B	N	Y	Y
N9-B1	N	Y	Y
N9-B2	N	Y	Y
N9-C	N	Y	Y
N9-C1	N	Y	Y
N9-D	N	Y	Y
N9-E	N	Y	Y
N9-F	N	Y	Y

Kayenta Mine (cont.)			
Pond	Sediment Cleanout Required?	Embankment Removal Required?	Topsoil Spreading Required?
N9-G	N	Y	Y
N9-H	N	Y	Y
N9-I	N	Y	Y
N9-J	N	Y	Y
N9-J1	N	Y	Y
N9-J2	N	Y	Y
N9-J3	N	Y	Y
N9-K	N	Y	Y
N10-A	Y	Y	Y
N10-A1	Y	N	N
N10-A2	Y	Y	Y
N10-B	Y	Y	Y
N10-B1	Y	Y	Y
N10-D	Y	N	N
N10-D1	Y	Y	Y
N11-A	Y	N	N
N11-A1	Y	Y	Y
N11-A2	Y	Y	Y
N11-C	Y	Y	Y
N11-E	Y	Y	Y
N11-G	Y	N	N
N11-G1	Y	Y	Y
N11-G2	Y	Y	Y
N12-N	Y	Y	Y
N14-B	Y	Y	Y
N14-C	Y	Y	Y
N14-D	Y	N	N
N14-E	Y	Y	Y
N14-F	Y	N	N
N14-G	Y	N	N
N14-H	Y	N	N
N14-P	Y	Y	Y
N14-Q	Y	Y	Y
N14-T	Y	Y	Y
N1-AC	Y	Y	Y
N1-F	Y	Y	Y
N1-L	Y	Y	Y
N1-M	Y	Y	Y
N1-O	Y	Y	Y
N5-F	Y	Y	Y
N7-D	Y	N	N
N7-E	Y	N	N
N8-RA	Y	N	N
TPC-A	Y	Y	Y
TPF-A	Y	Y	Y
TPF-D	Y	N	N
TPF-E	Y	N	N
TS-A	Y	Y	Y
TS-B	Y	Y	Y

Notes:
1. Topsoil Volume = 553.8 acres-feet
2. Embankment Volume = 1,468,520 cy
3. Sediment Volume = 98,482 yd^3 or 10% cleaned out with a dragline
   640,130 yd^3 or 65% excavated with a dozer
   246,204 yd^3 or 25% is assumed in the incised portion of the pond and would not require removal

Total Sediment Volume based on % of pond design capacities.

Reference: Bond Map (Drawing 89800)

Table 24-2-10
WATER AND SEDIMENTATION PONDS
Black Mesa and Kayenta Mines

Black Mesa Mine			
Pond	Sediment Cleanout Required?	Embankment Removal Required?	Topsoil Spreading Required?
BM-A1	Y	Y	Y
BM-B	Y	Y	Y
BM-FWP	N	Y	Y
BM-SS	Y	Y	Y
BM-T	Y	Y	Y
BM-TW	N	Y	Y
CW-A	N	Y	Y
J1-RA	Y	N	N
J1-RB	Y	N	N
J27-A	Y	Y	Y
J27-RA	Y	Y	Y
J27-RB	Y	Y	Y
J27-RC	Y	Y	Y
J2-A	Y	N	N
J3-A	Y	Y	Y
J3-B	Y	Y	Y
J3-D	Y	N	N
J3-E	Y	N	N
J3-F	Y	Y	Y
J3-G	Y	N	N
J3-H	N	Y	Y
J3-SL	Y	Y	Y
J7-A	Y	Y	Y
J7-B1	Y	Y	Y
J7-CD	Y	Y	Y
J7-DAM	Y	N	N
J7-E	Y	Y	Y
J7-F	Y	Y	Y
J7-G	Y	Y	Y
J7-H	Y	Y	Y
J7-I	Y	Y	Y
J7-J	Y	Y	Y
J7-K	Y	Y	Y
J7-M	Y	Y	Y
J7-R	Y	N	N
MW-A	Y	Y	Y
MW-B	Y	Y	Y

Black Mesa Mine			
Pond	Sediment Cleanout Required?	Embankment Removal Required?	Topsoil Spreading Required?
J7-R1	Y	Y	Y
J7-S	Y	Y	Y
J7-T	Y	Y	Y
J7-U	Y	Y	Y
J7-V	Y	Y	Y
N10-C	Y	Y	Y
N12-C	Y	N	N
N12-C1	Y	Y	Y
N12-C2	Y	Y	Y
N12-M	Y	Y	Y
N5-A	Y	N	N
N5-A2	Y	N	N
N5-D	Y	Y	Y
N5-E	Y	Y	Y
N5-G	Y	Y	Y
N6-C	Y	Y	Y
N6-D	Y	Y	Y
N6-D1	Y	N	N
N6-E	Y	Y	Y
N6-F	Y	Y	Y
N6-G	Y	Y	Y
N6-H	Y	Y	Y
N6-I	Y	Y	Y
N6-J	Y	Y	Y
N6-K	Y	Y	Y
N6-K1	Y	Y	Y
N6-L	Y	N	N
N6-M	Y	Y	Y
WW-2	Y	Y	Y
WW-3	Y	Y	Y
WW-4	Y	Y	Y
WW-5	Y	Y	Y
WW-6	Y	Y	Y
WW-9	Y	Y	Y
WW-9A	Y	Y	Y
WW-9B	Y	Y	Y
WW-9C	Y	Y	Y

ATTACHMENT 24-3

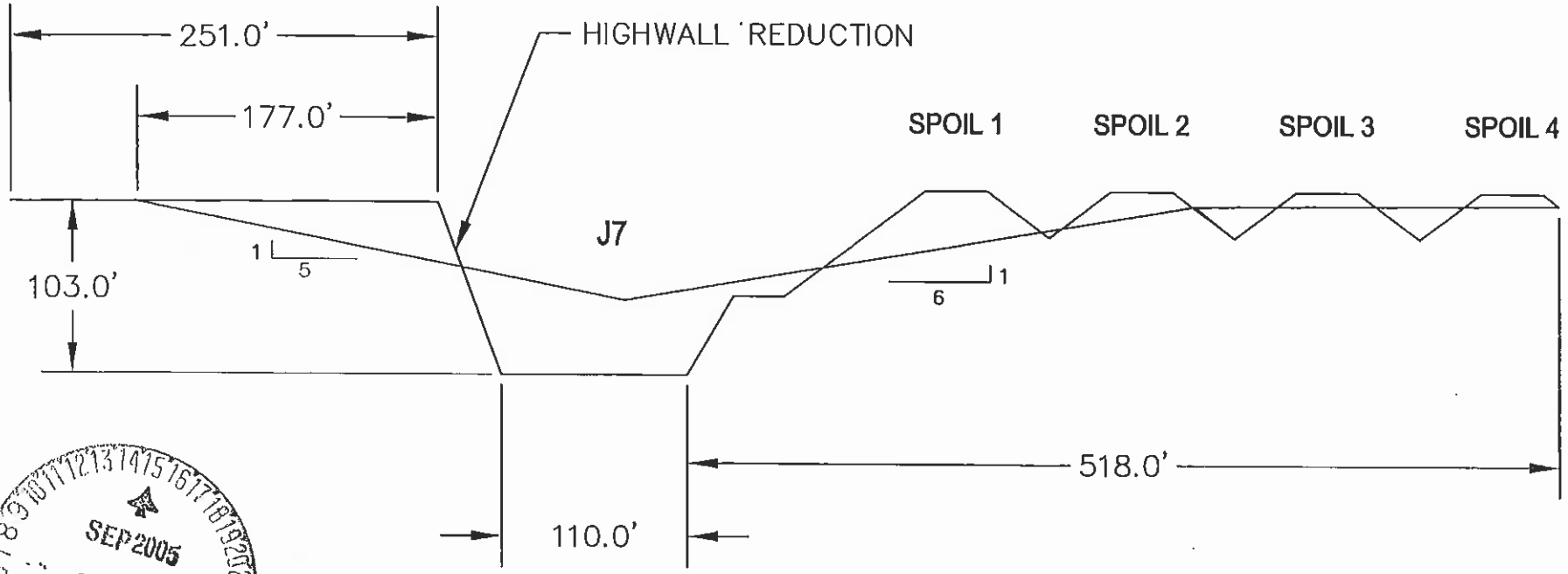
MINE AREA (CATEGORY I) WORKSHEETS
(Areas J-7, N-6, J-16, J-19, J-21, N-11, N-14, N14E, N-9)

- Earthwork Quantity Worksheet
- Cast/Blast Highwall Worksheet
- Doze Highwall Worksheet
- Doze First Two Spoils Worksheet
- Doze Back Two Spoils Worksheet
- Backfill/Grade Ramps
- General Grading
- Grade Terraces
- Grade Drainages/Downdrains
- Load, Haul, Place Riprap
- Haul and Place Suitable Material
- Revegetation
- Revegetation of Topsoil Stockpiles

MINE AREA: J7

Worksheet No. 24-3-1

Earthwork Quantity Worksheet



SEP 2005
APPROVED

SCALE
50' 0 50' 100'
CONTOUR INTERVAL N/A

HIGHWALL REDUCTION

Area = 3,460
Pit Length = 6,550
Volume = 839,350
Swelled Volume = 1,049,200

SPOIL TO OPEN PIT

Spoil 1,2 = 863,140

SPOIL GRADING

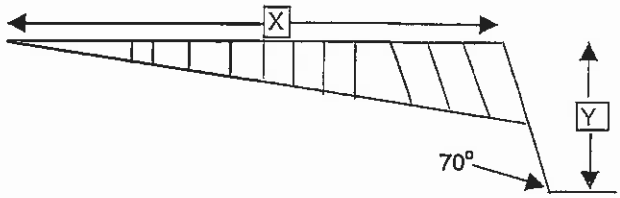
Spoil 3,4 = 177,090

AutoCAD: J7FinalSection.dwg

Table:	24-3-02	Page 1
Mine Area:	J-7	
Project:	Highwall Reduction	
Task:	Cast/Blast Highwall	
Equipment:	Driltech D55SP	

Activity Description
Drill, load, and blast highwall

Drill Rig is Driltech D55SP



Highwall Reduction Dimensions:

X (feet)	175
Y (feet)	104
Number of Rows	6

Drill Pattern (Cast) - 21'x24'

Hole Diameter (inches)	10 5/8
Powder Factor (lbs/cy)	0.65
Explosive Weight (lbs)[1] (single hole sequence)	1,030

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
1	21	33	612
2	42	28	528
3	63	24	445
Total	126	85	1,585

Drill Pattern (Blast) - 21'x24'

Hole (inches)	9 7/8
Powder Factor (lbs/cy)	0.55
Explosive Weight (lbs)[2] (single hole sequence)	431

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
4	84	18	340
5	105	14	261
6	126	10	183
Total	315	42	784

Notes:
1. Weight of explosives (cast rows, 1,2, and 3) based on total overburden volume and powder factor (0.65 lbs/cy).
2. Weight of explosives (blast rows, 4 and up) based on total overburden volume and powder factor (0.55 lbs/cy).

Table: 24-3-02 (cont.) Page 2
Mine Area: J-7
Project: Highwall Reduction
Task: Cast/Blast Highwall
Equipment: Driltech D55SP

Activity Description
Drill, load, and blast highwall

Drill Rig Is Driltech D55SP

Assumptions

Drilling Rate (ft/hr)	150
Bit Life (hrs)	
Cast 10 5/8"	370
Blast 9 7/8"	170

Unit Costs

Bit Cost (per bit)	
Cast 10 5/8"	$2,400
Blast 9 7/8"	$1,800
Explosives (per pound)[2]	$0.10
Drill Cost (per hour)	$196.78

Labor Costs

Driller Rate (per hour)	$26.59
Blaster Rate (per hour)	$27.67
Driller/Blaster Helper Rate (per hour)	$13.14

Cast Holes (Rows 1-3)

Total Drill Footage = (6,550 Pit Length / 24 Drill Hole Spacing) x 85 Total Drillhole Footage (Rows 1-3) = 23,176 feet

Total Overburden Volume = (6,550 Pit Length / 24 Drill Hole Spacing) x 1,585 Total Overburden Volume (Rows 1-3) = 432,627 cy

Drilling Time = 23,176 Total Drill Footage / 150 Drilling Rate x 1.371 Work Schedule Factor = 212 hours

Drilling Cost = 212 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate) + (1/370 Bit Life x $2,400 Bit Cost) = **$51,492**

Load and Blast Cost[1] = (212 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate) + (432,627 Total Overburden Volume x 0.65 Powder Factor x $0.10 Explosive Cost) = **$105,164**

Blast Holes (Rows 4 and up)

Total Drill Footage = (6,550 Pit Length / 24 Drill Hole Spacing) x 42 Total Drillhole Footage (Rows 4 and up) = 11,463 feet

Total Overburden Volume = (6,550 Pit Length / 24 Drill Hole Spacing) x 784 Total Overburden Volume (Rows 4 and up) = 213,967 cy

Drilling Time = 11,463 Total Drill Footage / 150 Drilling Rate x 1.371 Work Schedule Factor = 105 hours

Drilling Cost = 105 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate) + (1/170 Bit Life x $1,800 Bit Cost) = **$25,896**

Load and Blast Cost[1] = (105 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate) + (213,967 Total Overburden Volume x 0.55 Powder Factor x $0.10 Explosive Cost) = **$49,872**

Total Cost

$51,492 Drilling Cost (Cast Holes) + $105,164 Load and Blast Cost[1] (Cast Holes) + $25,896 Drilling Cost (Blast Holes) + $49,872 Load and Blast Cost[1] (Blast Holes) = **$232,424**

Notes:
1. Assumes continuous drill/load/blast sequence with loading and blasting time being roughly equivalent to drilling time.
2. All explosive supplies (i.e. explosives, primers, etc.) are included in explosives cost.

References: Tables 24-1-1, 24-1-2, 24-2-3, and 24-3-1.

Table:	24-3-03
Mine Area:	J-7
Project:	Backfill Mine Pits
Task:	Doze Highwall
Equipment:	D11R Dozer

Earthmoving Activity:
Doze blasted highwall reduction material into pit

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	110
Hourly production (from chart)	2,500
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

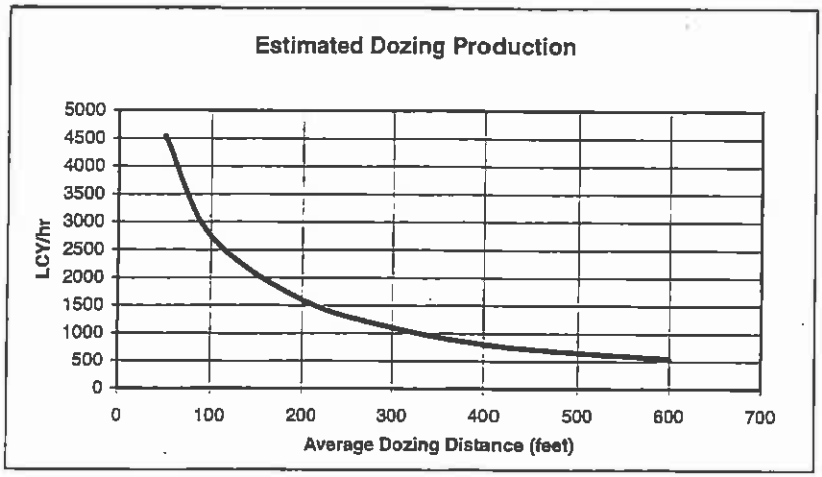
Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility
(i.e., dust, rain, snow, fog, or darkness) (0.8) no

Elevation Factor
<7,500 feet (1.0) yes

Quantity of Material to be Moved (cy)
786,900



Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.00 (Material Factor) x 1.4 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.0 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 0.86

Net Hourly Production = 2,500 (Normal Hourly Production (see graph above)) x 0.86 (Productivity Adjustment Factor) = 2,156 cy/hr

Hours Required = 786,900 (Volume to be Moved) / 2,156 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 500 Hours

Note: Quantity of material to be moved includes swelled highwall reduction volume from Table 24-2-3 less 25% for blast casting

References: Tables 24-2-3 and 24-3-2, and Cat Handbook, Ed. 28

Table:	24-3-04
Mine Area:	J-7
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze first two spoil ridges (first two spoils go into pit)

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	-17
Grade Correction	1.34
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

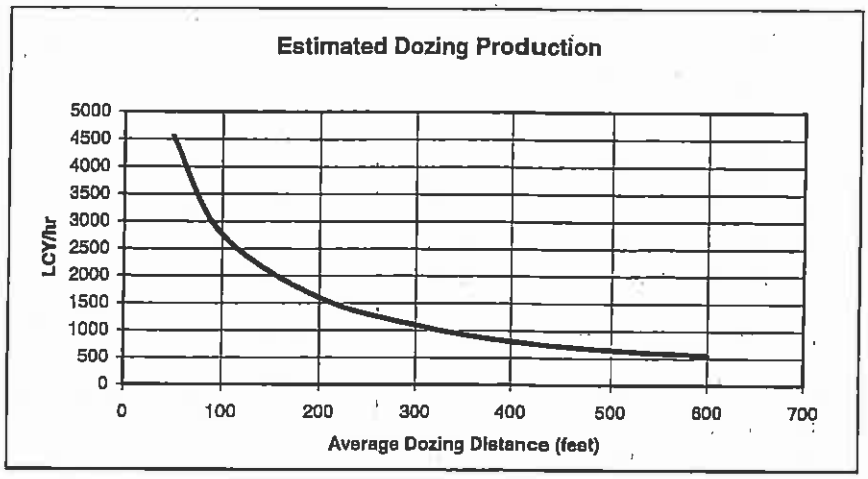
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
863,140



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.3 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.99**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.99 (Productivity Adjustment Factor) = **1,585 cy/hr**

Hours Required = 863,140 (Volume to be Moved) / 1,585 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **747 Hours**

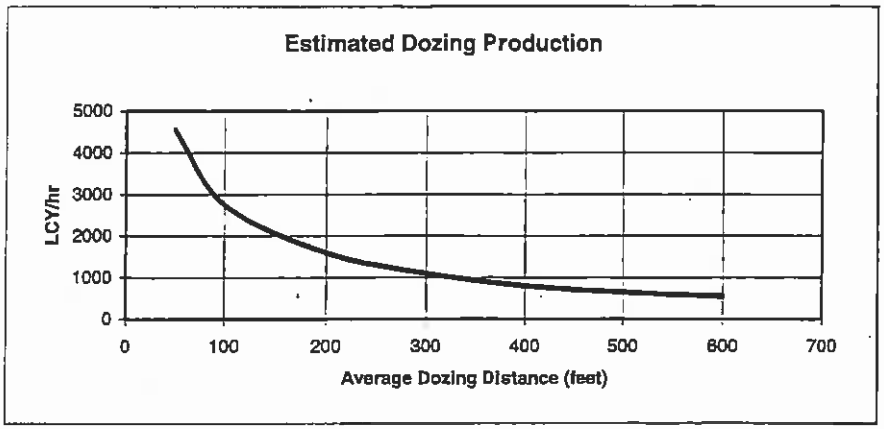
References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-05
Mine Area:	J-7
Project:	Backfill Mine Pits
Task:	Doze Back Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze back two spoil ridges

Characterization of Dozer Used (type, size. etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	70
Hourly production (from chart)	3,700
Grade (in percent)	-10
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Factors

Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Cable controlled blade (.6)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.20 (Material Factor) x 1.2 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.89**

Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Net Hourly Production = 3,700 (Normal Hourly Production (see graph above)) x 0.89 (Operating Adjustment Factor) = **3,282 cy/hour**

Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes

Hours Required = 177,090 (Volume to be Moved) / 3,282 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **74 hours**

Quantity of Material to be Moved (cy)
177,090

References: Table 24-2-3, Cat Handbook, Ed. 28.

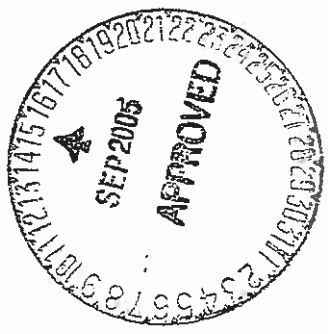


Table:	24-3-06
Mine Area:	J-7
Project:	Backfill and Grade Ramps
Task:	Backfill/Grade Ramps
Equipment:	D11R Dozer

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

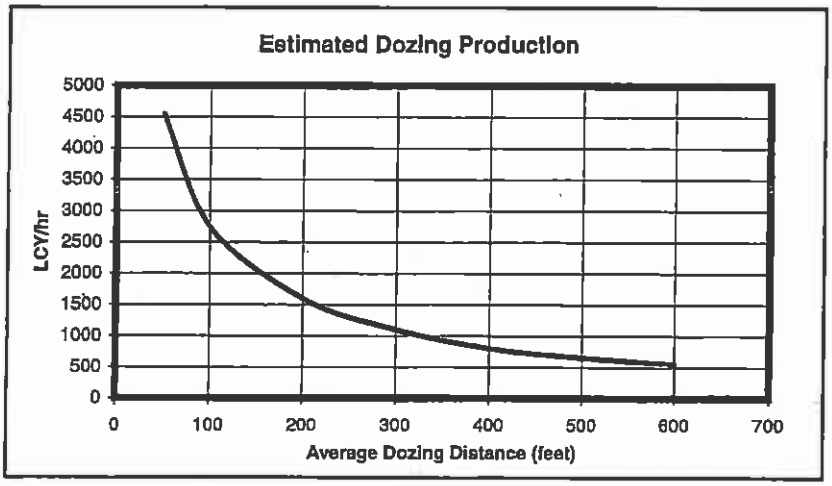
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
797,025



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.00 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.74**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = **1,183 cy/hr**

Hours Required = 797,025 (Volume to be Moved) / 1,183 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **924 hours**

References: Table 24-2-4, Cat Handbook, Ed. 28

Table:	24-3-07
Mine Area:	J-7
Project:	General Grading
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

0 acres

Hours Required	=	0 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 = Work Schedule Factor	0 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-5

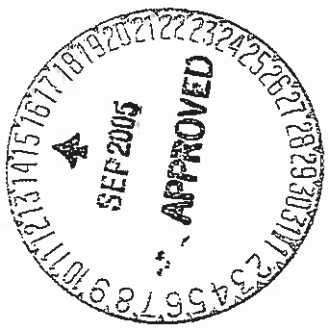


Table:	24-3-08
Mine Area:	J-7
Project:	Surface Stabilization
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement

75,400	lineal feet

Hours Required	=	75,400 / Terrace Requirement (ft)	1,060 x Production Rate (ft/hr)	1.371 = Work Schedule Factor	98 Hours

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-09
Mine Area:	J-7
Project:	Surface Stabilization
Task:	Grade Drainages/Downdrains
Equipment:	D7R Dozer

Earthmoving Activity
Grade drainages and downdrains.

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 800

Drainages/Downdrains Requirement
15,200 lineal feet

Hours Required	=	15,200 Drainages/Downdrain Requirement (ft)	/	800 Production Rate (ft/hr)	x	1.371 Work Schedule Factor	=	26 Hours

Note: Production rate based on average grading speed of 2 mph and 12 passes (PWCC experience).

Reference: Table 24-2-6

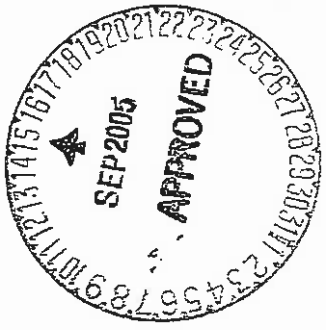


Table:	24-3-10	Page 1
Mine Area:	J-7	
Project:	Surface Stabilization	
Task:	Load, haul, and place riprap	
Equipment:	988F Loader Series II	
	769D Rear Dump Truck	

Earthmoving Activity

Load, haul,and place riprap in main channels and downdrains.

Characterization of Equipment Used (type, size, etc):

988F Loader Series II - bucket capacity	7.8	cy
769D Rear Dump Truck - truck capacity	30.9	cy

Loading and Haulage

Productivity Factors

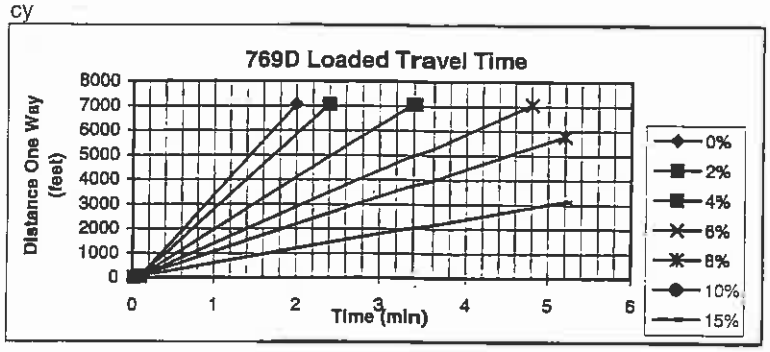
Basic Loader Cycle (min)	0.58
Bulky Material (min)	0.03
Dumped Pile (min)	0.02
Common Loader/Truck Ownership (min)	-0.04
Work Hour Factor (50 min/hr)	0.83
Bucket Fill Factor	0.85
Truck Loaded Volume-4 passes (cy)	26.52
Haulage Distance (ft)	3,500
Effective Grade (%)	8

Production Times

Haul Time (min)	3.2
Dump Time (min)	1.1
Return Time (min)	1.6
Truck/Loader Match (trucks per loader)	3
Riprap Haulage Requirement (cy)	29,700

Placement

Riprap Placement Requirement (ft)	8,910
Placement Rate (ft/shift)	500
Shift (hours)	8



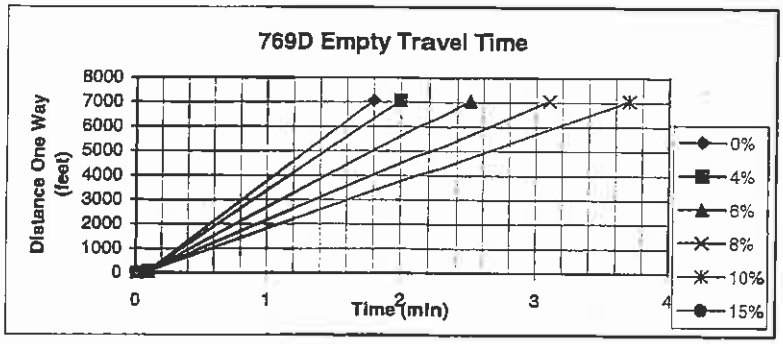


Table: 24-3-10 (cont.) Page 2
Mine Area: J-7
Project: Surface Stabilization
Task: Load, haul, and place riprap
Equipment: 988F Loader Series II
769D Rear Dump Truck

Load Summary

Loader Cycle Time = 0.58 (Basic Loader Cycle Time) + 0.03 (Bulky Material) + 0.02 (Dumped Pile) + -0.04 (Common Leader/Truck) = 0.59 min

Loader Volume per Cycle = 7.80 (Bucket Capacity) x 0.85 (Bucket Fill Factor) = 6.63 cy

Loader Cycle Time (per truck) = 0.59 (Loader Cycle Time) x 4 (Passes per Truck) = 2.36 min

Haul Summary

Truck Cycle Time = 2.36 (Load Time) + 3.2 (Haul Time) + 1.1 (Dump Time) + 1.60 (Return Time) = 8.26 min

Fleet Productivity = (3 (Loader/Truck Match) x 26.52 (Truck Loaded Volume))/(3 (Loader/Truck Match) x 8.26 (Truck Cycle Time))x 60 (min/hr) = 193 cy/hr

Required Fleet Hours = 29,700 (Riprap Haulage Requirement) / 193 (Fleet Productivity) x 1.371 (Work Schedule Factor) = **211 hrs**

Placement Summary

Required Loader Hours = (8,910 (Riprap Placement Requirement) / 500 (Placement Rate))x 8 (Operating Shift) x 1.371 (Work Schedule Factor) = **196 hrs**

Notes: Riprap placement rate based on PWCC experience. Riprap placement length based on 20 percent of main channels and 50 percent of downdrain channels.

References: Table 24-2-6, Cat Handbook, Ed. 28.

Table:	24-3-11
Mine Area:	J-7
Project:	Topsoil/Suitable Material Replacement
Task:	Suitable Material Placement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place suitable material to graded spoil areas

Characterization of Equipment Used
637E P-P Scraper - capacity 31 cy

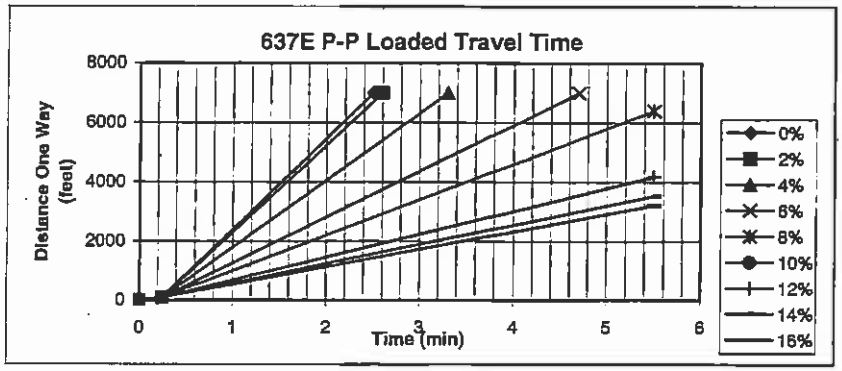
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

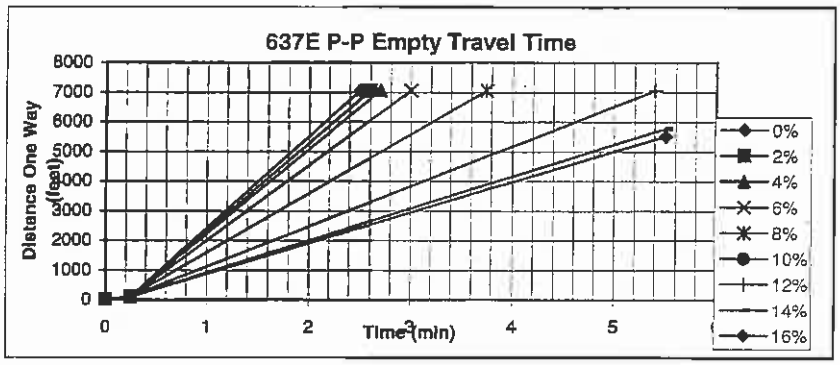
Loaded Distance (ft)	700
Loaded Grade (%)	-5
Loaded Effective Grade (%)	0
Empty Distance (ft)	700
Empty Grade (%)	5
Empty Effective Grade (%)	10

Production Times

Typical Load Time for 637E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

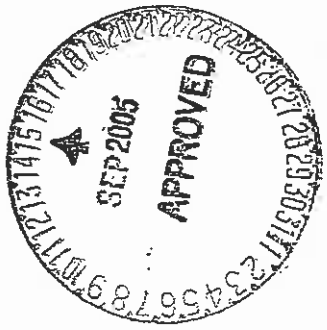
Quantity of Material to be Moved (cy)
0





Cycle Time =	1.0 Load Time	+ 0.4 Loaded Trip Time	+ 0.6 Maneuver and Spread Time	+ 0.6 Empty Trip Time	= 2.6 min
Cycles/Hour =	60 min/hr	/ 2.6 Cycle Time	= 23 cycles/hr		
Hourly Production =	31 Adjusted Load (cy)	x 23.08 Cycles/ Hour	= 715 cy/hr		

Hours Required =	0 Volume	/ 715 Hourly Production	x 1.371 Work Schedule Factor	= 0 hrs



References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-11
Mine Area:	J-7
Project:	Topsoil/Suitable Material Replacement
Task:	Suitable Material Placement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place suitable material to graded spoil areas

Characterization of Equipment Used
637E P-P Scraper - capacity 31 cy

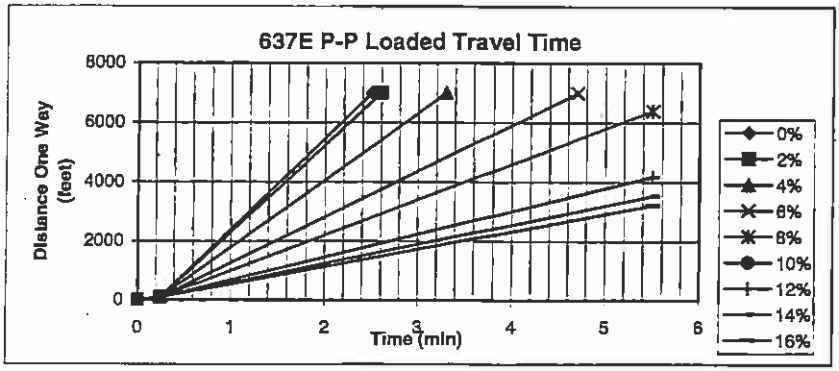
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

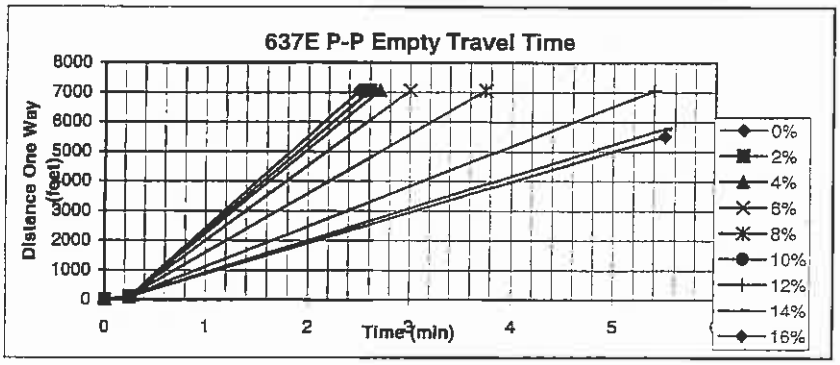
Loaded Distance (ft)	700
Loaded Grade (%)	-5
Loaded Effective Grade (%)	0
Empty Distance (ft)	700
Empty Grade (%)	5
Empty Effective Grade (%)	10

Production Times

Typical Load Time for 637E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved (cy)
0





Cycle Time = 1.0 (Load Time) + 0.4 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.6 (Empty Trip Time) = 2.6 min

Cycles/Hour = 60 min/hr / 2.6 Cycle Time = 23 cycles/hr

Hourly Production = 31 Adjusted Load (cy) x 23.08 Cycles/Hour = 715 cy/hr

Hours Required = 0 Volume / 715 Hourly Production x 1.371 Work Schedule Factor = 0 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-12
Mine Area:	J-7
Project:	Topsoil/Suitable Material Replacement
Task:	Topsoil Replacement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place topsoil onto graded spoil areas

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

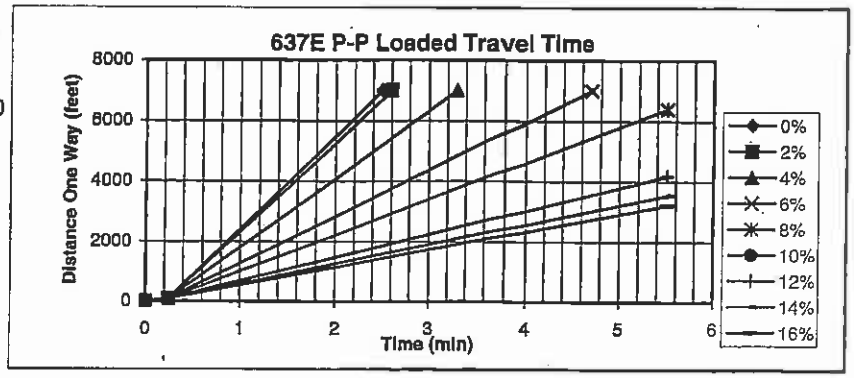
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

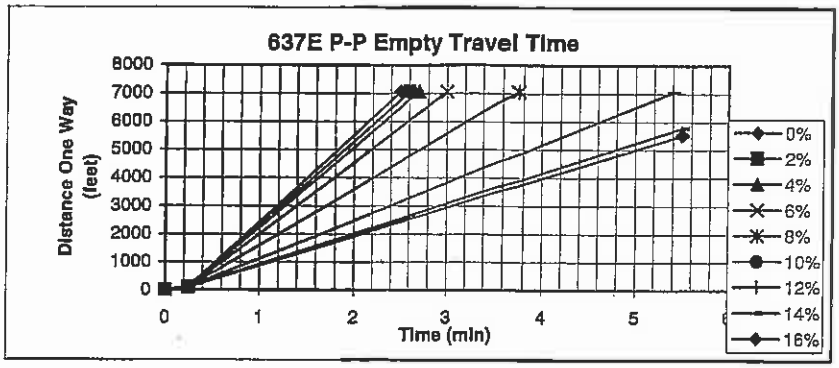
Loaded Distance (ft)	4,150
Loaded Grade (%)	2.5
Loaded Effective Grade (%)	7.5
Empty Distance (ft)	4,150
Empty Grade (%)	-2.5
Empty Effective Grade (%)	2.5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	3.3
Empty Travel Time (from chart)	1.6

Quantity of Material to be Moved (cy)
343,240





Cycle Time = 1.0 (Load Time) + 3.3 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.6 (Empty Trip Time) = **6.5 min**

Cycles/Hour = 60 min/hr / 6.5 Cycle Time = **9 cycles/hr**

Hourly Production = 31 Adjusted Load (cy) x 9.23 Cycles/Hour = **286 cy/hr**

Hours Required = 343,240 Volume / 286 Hourly Production x 1.371 Work Schedule Factor = **1645 hrs**

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-13
Mine Area:	J-7
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
J-7 Mining Area (Category I)

Revegetation Area

Area (acre)	213
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 213 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$264,026**

Reseeding Costs = 213 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$86,377**

References: Table 24-1-3 and 24-2-7.

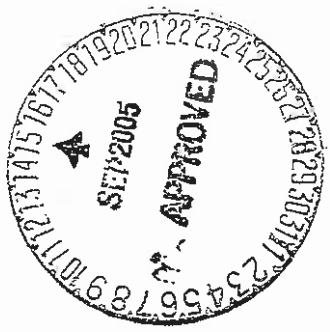


Table:	24-3-14
Mine Area:	J-7
Project:	Revegetation
Task:	Revegetation of Topsoil Stockpile
Equipment:	Miscellaneous

Revegetation Area Description
J-7 Mining Area (Category I) - Topsoil Stockpiles

Revegetation Area

Area (acre)	30.7
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 31 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$38,099**

Reseeding Costs = 31 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$12,464**

References: Table 24-1-3 and 24-2-7.

MINE AREA: N6

Worksheet No. 24-3-1

Earthwork Quantity Worksheet

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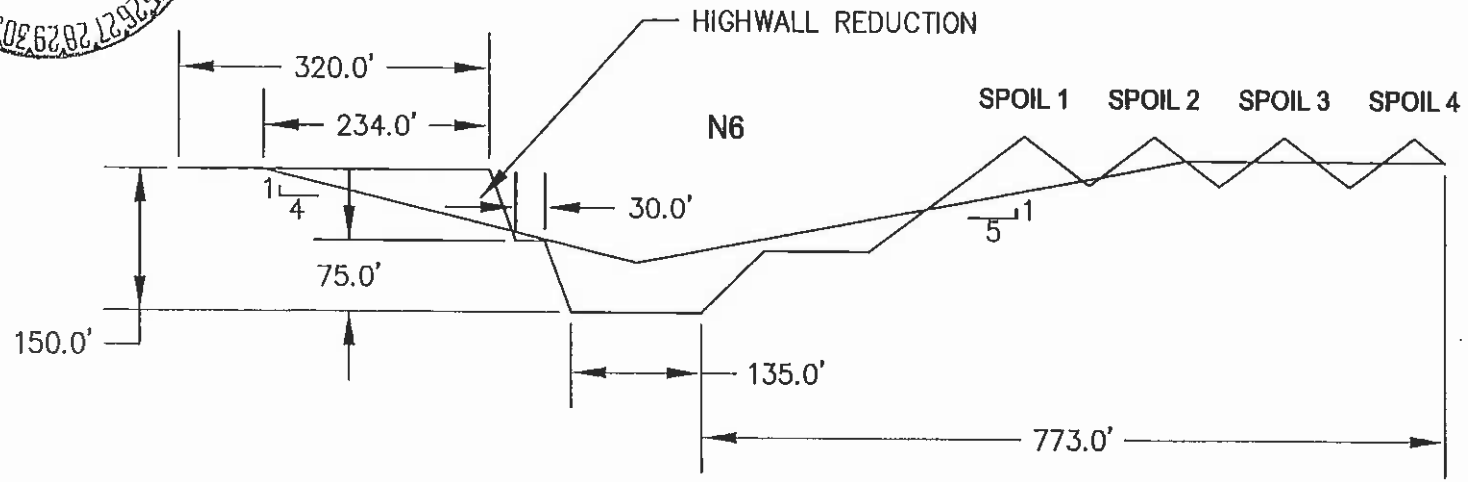


HIGHWALL REDUCTION

Area = 7,502
Pit Length = 16,900
Volume = 4,695,700
Swelled Volume = 5,869,650

SPOIL TO OPEN PIT

Spoil 1,2 = 3,791,230

SPOIL GRADING

Spoil 3,4 = 1,026,520

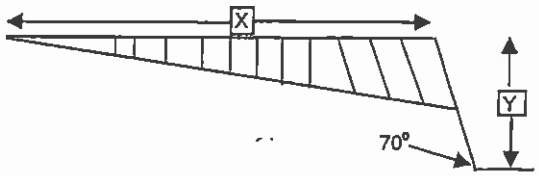
SCALE
100' 0 100' 200'
CONTOUR INTERVAL N/A

AutoCAD: N6FinalSection.dwg

Table: 24-3-02 Page 1
Mine Area: N-6
Project: Highwall Reduction
Task: Cast/Blast Highwall
Equipment: Driltech D55SP

Activity Description
Drill, load, and blast highwall

Drill Rig is Driltech D55SP



Highwall Reduction Dimensions:

X (feet)	234
Y (feet)	150
Number of Rows	9

Drill Pattern (Cast) - 21'x24'

Hole Diameter (inches)	10 5/8
Powder Factor (lbs/cy)	0.65
Explosive Weight (lbs)[1] (single hole sequence)	1,859

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
1	21	57	1058
2	42	51	954
3	63	45	849
Total	126	153	2,861

Drill Pattern (Blast) - 21'x24'

Hole (Inches)	9 7/8
Powder Factor (lbs/cy)	0.55
Explosive Weight (lbs)[2] (single hole sequence)	1,502

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
4	84	38	700
5	105	32	602
6	126	27	504
7	147	22	406
8	168	17	308
9	189	11	210
Total	819	146	2,730

Notes:
1. Weight of explosives (cast rows, 1,2, and 3) based on total overburden volume and powder factor (0.65 lbs/cy).
2. Weight of explosives (blast rows, 4 and up) based on total overburden volume and powder factor (0.55 lbs/cy).

Table: 24-3-02 (cont. Page 2
Mine Area: N-6
Project: Highwall Reduction
Task: Cast/Blast Highwall
Equipment: Driltech D55SP

Activity Description
Drill, load, and blast highwall

Drill Rig is Driltech D55SP

Assumptions

Drilling Rate (ft/hr)	150
Bit Life (hrs)	
Cast 10 5/8"	370
Blast 9 7/8"	170

Unit Costs

Bit Cost (per bit)	
Cast 10 5/8"	$2,400
Blast 9 7/8"	$1,800
Explosives (per pound)[2]	$0.10
Drill Cost (per hour)	$196.78

Labor Costs

Driller Rate (per hour)	$26.59
Blaster Rate (per hour)	$27.67
Driller/Blaster Helper Rate (per hour)	$13.14

Cast Holes (Rows 1-3)

Total Drill Footage = (16,900 Pit Length / 24 Drill Hole Spacing) x 153 Total Drillhole Footage (Rows 1-3) = 107,908 feet

Total Overburden Volume = (16,900 Pit Length / 24 Drill Hole Spacing) x 2,861 Total Overburden Volume (Rows 1-3) = 2,014,276 cy

Drilling Time = 107,908 Total Drill Footage / 150 Drilling Rate) x 1.371 Work Schedule Factor = 987 hours

Drilling Cost = 987 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate) + (1/370 Bit Life x $2,400 Bit Cost) = $239,741

Load and Blast Cost[1] = (987 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate) + (2,014,276 Total Overburden Volume x 0.65 Powder Factor x $0.10 Explosive Cost) = $489,634

Blast Holes (Rows 4 and up)

Total Drill Footage = (16,900 Pit Length / 24 Drill Hole Spacing) x 146 Total Drillhole Footage (Rows 4 and up) = 102,984 feet

Total Overburden Volume = (16,900 Pit Length / 24 Drill Hole Spacing) x 2,730 Total Overburden Volume (Rows 4 and up) = 1,922,375 cy

Drilling Time = 102,984 Total Drill Footage / 150 Drilling Rate x 1.371 Work Schedule Factor = 942 hours

Drilling Cost = 942 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate) + (1/170 Bit Life x $1,800 Bit Cost) = $232,665

Load and Blast Cost[1] = (942 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate) + (1,922,375 Total Overburden Volume x 0.55 Powder Factor x $0.10 Explosive Cost) = $448,071

Total Cost

$239,741 Drilling Cost (Cast Holes) + $489,634 Load and Blast Cost[1] (Cast Holes) + $232,665 Drilling Cost (Blast Holes) + $448,071 Load and Blast Cost[1] (Blast Holes) = $1,410,110

Notes:
1. Assumes continuous drill/load/blast sequence with loading and blasting time being roughly equivalent to drilling time.
2. All explosive supplies (i.e. explosives, primers, etc.) are included in explosives cost.

References: Tables 24-1-1, 24-1-2, 24-2-3, and 24-3-1.

APPROVED SEP 2005

Table:	24-3-03
Mine Area:	N-6
Project:	Backfill Mine Pits
Task:	Doze Highwall
Equipment:	D11R Dozer

Earthmoving Activity:
Doze blasted highwall reduction material into pit

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	193
Hourly production (from chart)	1,610
Grade (in percent)	-25
Grade Correction	1.5
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

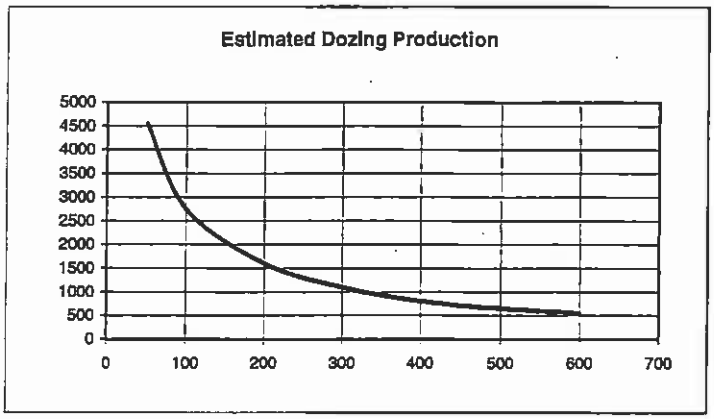
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
4,402,238



Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.00 (Material Factor) x 1.5 (Grade Correction) x 0.82 (Density Correction)
x 1.00 (Production Method) x 1.0 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 0.92

Net Hourly Production = 1,610 (Normal Hourly Production (see graph above)) x 0.92 (Productivity Adjustment Factor) = 1,488 cy/hr

Hours Required = 4,402,238 (Volume to be Moved) / 1,488 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 4,058 Hours

Note: Quantity of material to be moved includes swelled highwall reduction volume from Table 24-2-3 less 25% for blast casting

References: Tables 24-2-3 and 24-3-2, and Cat Handbook, Ed. 28

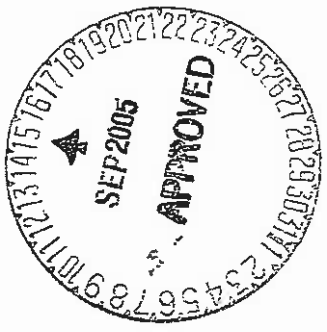
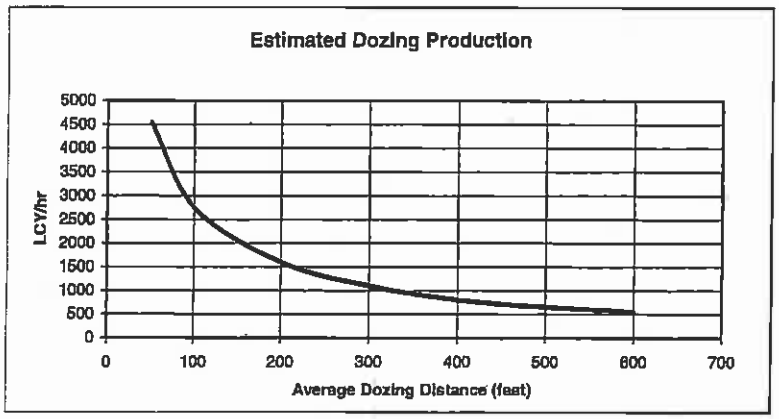


Table:	24-3-04
Mine Area:	N-6
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze first two spoil ridges (first two spoils go into pit)

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	285
Hourly production (from chart)	1,150
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustment Factors

Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
3,791,230

Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.4 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 1.04

Net Hourly Production = 1,150 (Normal Hourly Production (see graph above)) x 1.04 (Productivity Adjustment Factor) = **1,190 cy/hr**

Hours Required = 3,791,230 (Volume to be Moved) / 1,190 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 4,368 Hours

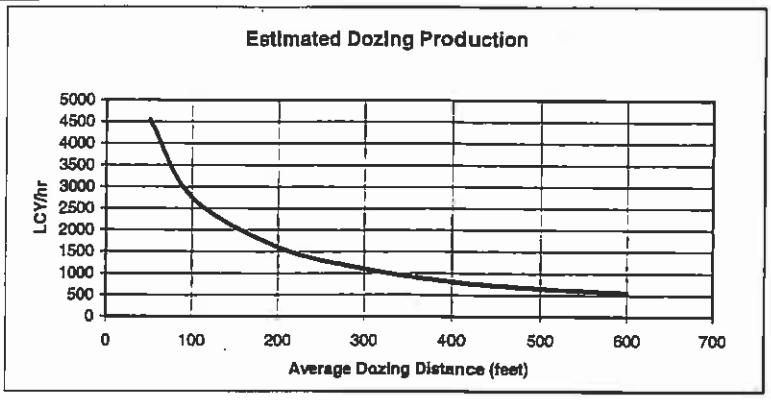
References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-05
Mine Area:	N-6
Project:	Backfill Mine Pits
Task:	Doze Back Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze back two spoil ridges

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	100
Hourly production (from chart)	2,800
Grade (in percent)	-10
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Cable controlled blade (.6)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.20 (Material Factor) x 1.2 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.89**

Net Hourly Production = 2,800 (Normal Hourly Production (see graph above)) x 0.89 (Operating Adjustment Factor) = **2,484 cy/hour**

Hours Required = 1,026,520 (Volume to be Moved) / 2,484 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **567 hours**

Quantity of Material to be Moved (cy)
1,026,520

References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-06
Mine Area:	N-6
Project:	Backfill and Grade Ramps
Task:	Backfill/Grade Ramps
Equipment:	D11R Dozer

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

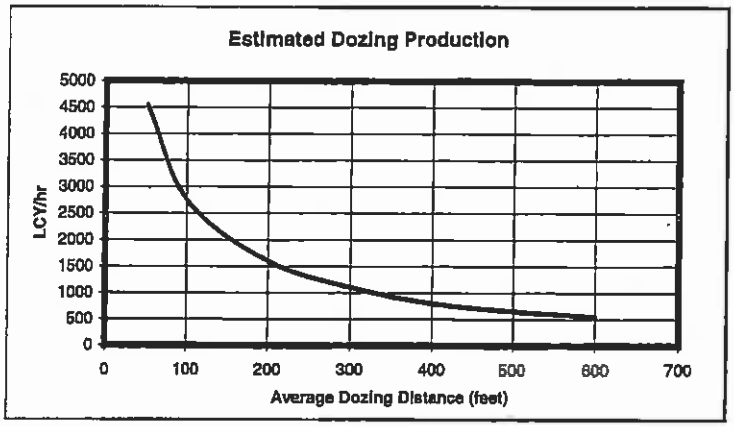
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
2927742



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.00 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 0.74

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = 1,183 cy/hr

Hours Required = 2,927,742 (Volume to be Moved) / 1,183 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 3,394 hours

References: Table 24-2-4, Cat Handbook, Ed. 28

Table:	24-3-07
Mine Area:	N-6
Project:	General Grading
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity
Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded
57 acres

Hours Required	=	57 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 = Work Schedule Factor	625 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-5

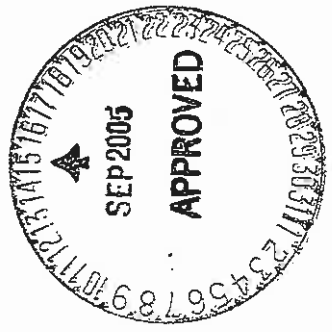


Table:	24-3-08
Mine Area:	N-6
Project:	Surface Stabilization
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement
185,020 lineal feet

Hours Required	=	185,020 Terrace Requirement (ft)	/	1,060 Production Rate (ft/hr)	x	1.371 Work Schedule Factor	= 239 Hours

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

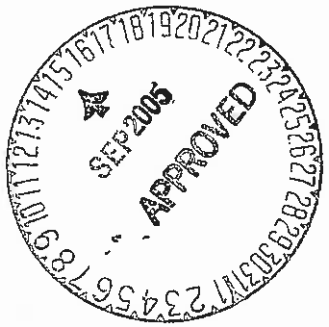


Table:	24-3-09
Mine Area:	N-6
Project:	Surface Stabilization
Task:	Grade Drainages/Downdrains
Equipment:	D7R Dozer

Earthmoving Activity
Grade drainages and downdrains.

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 800

Drainages/Downdrains Requirement
28,800 lineal feet

Hours Required	=	28,800 / Drainages/Downdrain Requirement (ft)	800 Production Rate (ft/hr)	x 1.371 Work Schedule Factor	= 49 Hours

Note: Production rate based on average grading speed of 2 mph and 12 passes (PWCC experience).

Reference: Table 24-2-6

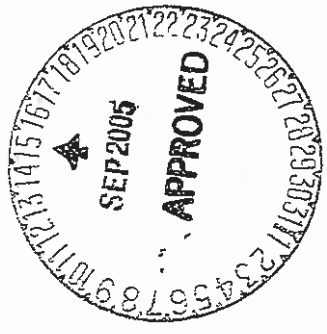


Table:	24-3-10	Page 1
Mine Area:	N-6	
Project:	Surface Stabilization	
Task:	Load, haul, and place riprap	
Equipment:	988F Loader Series II	
	769D Rear Dump Truck	

Earthmoving Activity

Load, haul,and place riprap in main channels and downdrains.

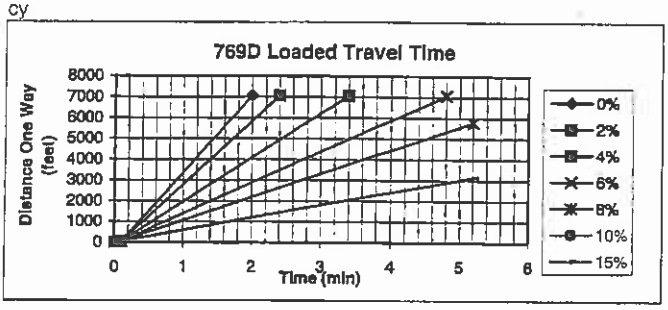
Characterization of Equipment Used (type, size, etc):

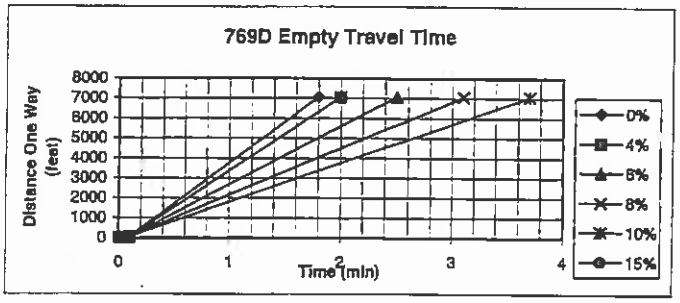
988F Loader Series II - bucket capacity	7.8	cy
769D Rear Dump Truck - truck capacity	30.9	cy

Loading and Haulage

Productivity Factors

Basic Loader Cycle (min)	0.58
Bulky Material (min)	0.03
Dumped Pile (min)	0.02
Common Loader/Truck Ownership (min)	-0.04
Work Hour Factor (50 min/hr)	0.83
Bucket Fill Factor	0.85
Truck Loaded Volume-4 passes (cy)	26.52
Haulage Distance (ft)	3,000
Effective Grade (%)	7





Production Times

Haul Time (min)	2.9
Dump Time (min)	1.1
Return Time (min)	1.40
Truck/Loader Match (trucks per loader)	3
Riprap Haulage Requirement (cy)	59,250

Placement

Riprap Placement Requirement (ft)	17,780
Placement Rate (ft/shift)	500
Shift (hours)	8

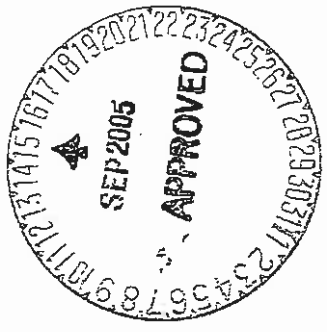


Table:	24-3-10 (cont.) Page 2
Mine Area:	N-6
Project:	Surface Stabilization
Task:	Load, haul, and place riprap
Equipment:	988F Loader Series II
	769D Rear Dump Truck

Load Summary

Loader Cycle Time = 0.58 (Basic Loader Cycle Time) + 0.03 (Bulky Material) + 0.02 (Dumped Pile) + -0.04 (Common Leader/Truck) = **0.59 min**

Loader Volume per Cycle = 7.80 (Bucket Capacity) x 0.85 (Bucket Fill Factor) = **6.63 cy**

Loader Cycle Time (per truck) = 0.59 (Loader Cycle Time) x 4 (Passes per Truck) = **2.36 min**

Haul Summary

Truck Cycle Time = 2.36 (Load Time) + 2.9 (Haul Time) + 1.1 (Dump Time) + 1.40 (Return Time) = **7.76 min**

Fleet Productivity = (3 (Loader/Truck Match) x 26.52 (Truck Loaded Volume))/(3 (Loader/Truck Match) x 7.76 (Truck Cycle Time))x 60 (min/hr) = 205 cy/hr

Required Fleet Hours = 59,250 (Riprap Haulage Requirement) / 205 (Fleet Productivity) x 1.371 (Work Schedule Factor) = **396 hrs**

Placement Summary

Required Loader Hours = (17,780 (Riprap Placement Requirement) / 500 (Placement Rate))x 8 (Operating Shift) x 1.371 (Work Schedule Factor) = **390.1 hrs**

Notes: Riprap placement rate based on PWCC experience. Riprap placement length based on 20 percent of main channels and 50 percent of downdrain channels.

References: Table 24-2-6, Cat Handbook, Ed. 28.

Table:	24-3-11
Mine Area:	N-6
Project:	Topsoil/Suitable Material Replacement
Task:	Suitable Material Placement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place suitable material to graded spoil areas

Characterization of Equipment Used

637E P-P Scraper - capacity	31	cy

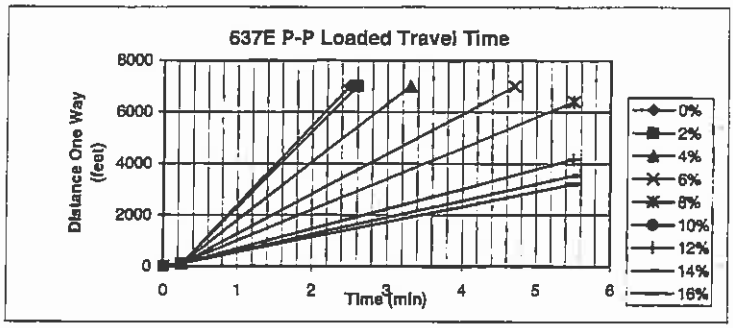
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

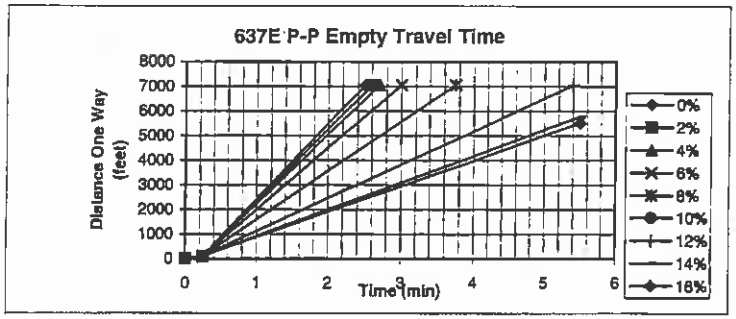
Loaded Distance (ft)	700
Loaded Grade (%)	-5
Loaded Effective Grade (%)	0
Empty Distance (ft)	700
Empty Grade (%)	5
Empty Effective Grade (%)	10

Production Times

Typical Load Time for 637E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved (cy)
0





Cycle Time =	1.0 Load Time	+ 0.4 Loaded Trip Time	+ 0.6 Maneuver and Spread Time	+ 0.6 Empty Trip Time	= 2.6 min

Cycles/Hour =	60 min/hr	/ 2.6 Cycle Time	= 23 cycles/hr

Hourly Production =	31 Adjusted Load (cy)	x 23.08 Cycles/ Hour	= 715 cy/hr

Hours Required =	0 Volume	/ 715 Hourly Production	x 1.371 Work Schedule Factor	= 0 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-12
Mine Area:	N-6
Project:	Topsoil/Suitable Material Replacement
Task:	Topsoil Replacement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place topsoil onto graded spoil areas

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

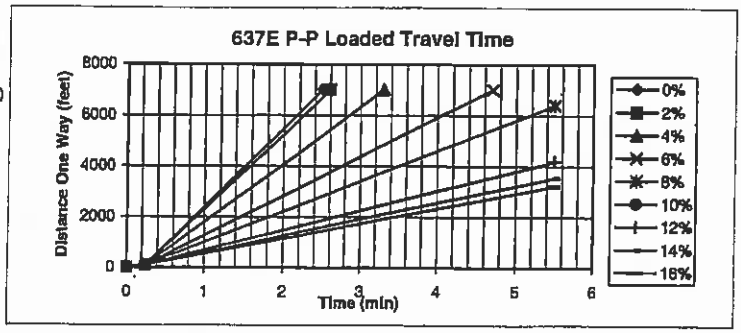
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

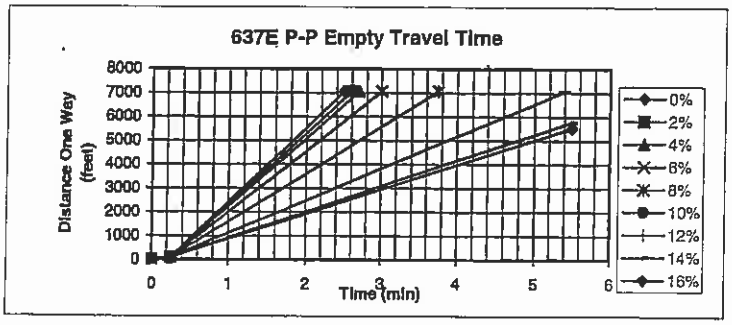
Loaded Distance (ft)	3,950
Loaded Grade (%)	2.5
Loaded Effective Grade (%)	7.5
Empty Distance (ft)	3,950
Empty Grade (%)	-2.5
Empty Effective Grade (%)	2.5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	3.2
Empty Travel Time (from chart)	1.5

Quantity of Material to be Moved (cy)
814,279





Cycle Time = 1.0 (Load Time) + 3.2 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.5 (Empty Trip Time) = 6.3 min

Cycles/Hour = 60 min/hr / 6.3 (Cycle Time) = 10 cycles/hr

Hourly Production = 31 (Adjusted Load (cy)) x 9.52 (Cycles/Hour) = 295 cy/hr

Hours Required = 814,279 (Volume) / 295 (Hourly Production) x 1.371 (Work Schedule Factor) = 3782.455 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-13
Mine Area:	N-6
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-6 Mining Area (Category I)

Revegetation Area

Area (acre)	505
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 505 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$626,355**

Reseeding Costs = 505 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$204,916**

References: Table 24-1-3 and 24-2-7.

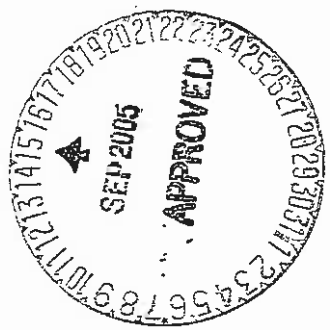


Table:	24-3-14
Mine Area:	N-6
Project:	Revegetation
Task:	Revegetation of Topsoil Stockpiles
Equipment:	Miscellaneous

Revegetation Area Description
N-6 Mining Area (Category I) - Topsoil Stockpiles

Revegetation Area

Area (acre)	77
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 77 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$95,681**

Reseeding Costs = 77 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$31,303**

References: Table 24-1-3 and 24-2-7.

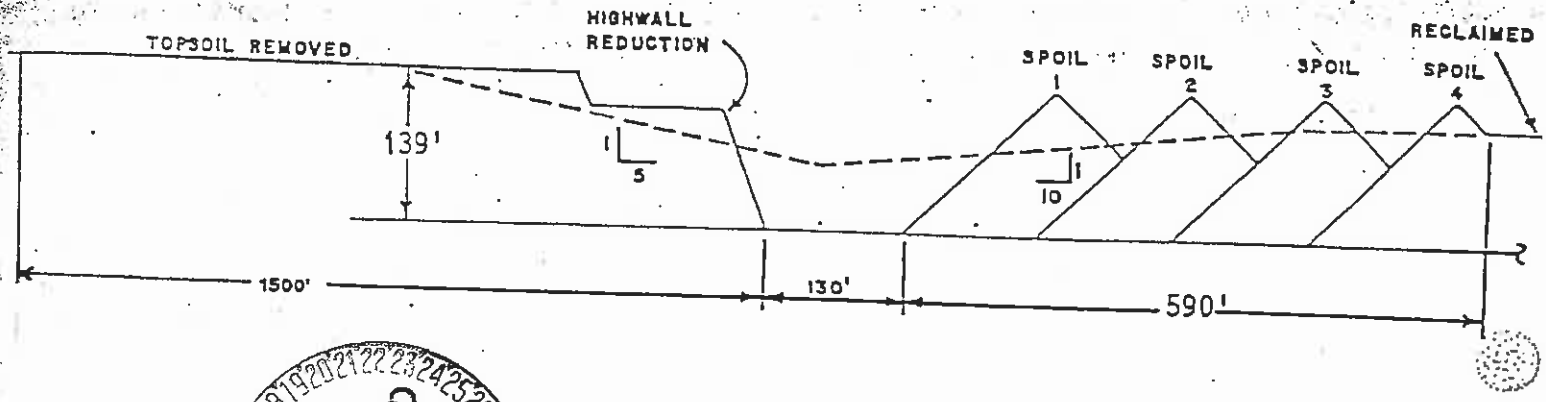
Mine Area J-16

Project Open Pit Backfilling

Date Open Pit Backfilling

WORKSHEET NO. J-16-1

EARTHWORK QUANTITY WORKSHEET



Highwall Reduction

Area = 3,920 sq. ft. (digitized area)
Pit Length = 7,700 ft.
Volume = 1,117,900 cu. yd. (for drilling and shooting)
Volume (including 25% swell) = 1,397,400 cu. yd. (for dozing)

Spoil to Open Pit

Spoil 1, 2 = 8,350 sq. ft. x 7,700 ft. = 2,381,300 cu. yd.

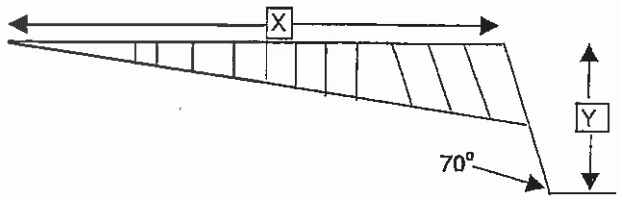
Spoil Grading

Spoil 3, 4 = 1,730 sq. ft. x 7,700 ft. = 493,400 cu. yd.

Table: 24-3-02 Page 1
Mine Area: J-16
Project: Highwall Reduction
Task: Cast/Blast Highwall
Equipment: Drilltech D55SP

Activity Description
Drill, load, and blast highwall

Drill Rig is Drilltech D55SP



Highwall Reduction Dimensions:

X (feet)	270
Y (feet)	139
Number of Rows	10

Drill Pattern (Cast) - 21'x24'

Hole Diameter (inches)	10 5/8
Powder Factor (lbs/cy)	0.65
Explosive Weight (lbs)[1] (single hole sequence)	1,766

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
1	21	53	989
2	42	49	906
3	63	44	822
Total	126	146	2,717

Drill Pattern (Blast) - 21'x24'

Hole (inches)	9 7/8
Powder Factor (lbs/cy)	0.55
Explosive Weight (lbs)[2] (single hole sequence)	1,768

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
4	84	37	694
5	105	33	616
6	126	29	538
7	147	25	459
8	168	20	381
9	189	16	302
10	210	12	224
Total	1,029	172	3,214

Notes:
1. Weight of explosives (cast rows, 1,2, and 3) based on total overburden volume and powder factor (0.65 lbs/cy).
2. Weight of explosives (blast rows, 4 and up) based on total overburden volume and powder factor (0.55 lbs/cy).

Table: 24-3-02 (cont. Page 2
Mine Area: J-16
Project: Highwall Reduction
Task: Cast/Blast Highwall
Equipment: Driltech D55SP

Activity Description
Drill, load, and blast highwall

Drill Rig Is Driltech D55SP

Assumptions

Drilling Rate (ft/hr)	150
Bit Life (hrs)	
Cast 10 5/8"	370
Blast 9 7/8"	170

Unit Costs

Bit Cost (per bit)	
Cast 10 5/8"	$2,400
Blast 9 7/8"	$1,800
Explosives (per pound)[2]	$0.10
Drill Cost (per hour)	$196.78

Labor Costs

Driller Rate (per hour)	$26.59
Blaster Rate (per hour)	$27.67
Driller/Blaster Helper Rate (per hour)	$13.14

Cast Holes (Rows 1-3)

Total Drill Footage = (7,700 Pit Length / 24 Drill Hole Spacing) x 146 Total Drillhole Footage (Rows 1-3) = **46,707 feet**

Total Overburden Volume = (7,700 Pit Length / 24 Drill Hole Spacing) x 2,717 Total Overburden Volume (Rows 1-3) = **871,860 cy**

Drilling Time = 46,707 Total Drill Footage / 150 Drilling Rate x 1.371 Work Schedule Factor = **427 hours**

Drilling Cost = 427 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate + (1/370 Bit Life x $2,400 Bit Cost)) = **$103,770**

Load and Blast Cost[1] = (427 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate + (871,860 Total Overburden Volume x 0.65 Powder Factor x $0.10 Explosive Cost) = **$211,933**

Blast Holes (Rows 4 and up)

Total Drill Footage = (7,700 Pit Length / 24 Drill Hole Spacing) x 172 Total Drillhole Footage (Rows 4 and up) = **55,248 feet**

Total Overburden Volume = (7,700 Pit Length / 24 Drill Hole Spacing) x 3,214 Total Overburden Volume (Rows 4 and up) = **1,031,287 cy**

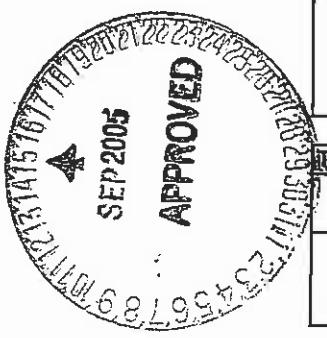
Drilling Time = 55,248 Total Drill Footage / 150 Drilling Rate x 1.371 Work Schedule Factor = **505 hours**

Drilling Cost = 505 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate + (1/170 Bit Life x $1,800 Bit Cost)) = **$124,817**

Load and Blast Cost[1] = (505 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate + (1,031,287 Total Overburden Volume x 0.55 Powder Factor x $0.10 Explosive Cost) = **$240,374**

Total Cost

$103,770 Drilling Cost (Cast Holes) + $211,933 Load and Blast Cost[1] (Cast Holes) + $124,817 Drilling Cost (Blast Holes) + $240,374 Load and Blast Cost[1] (Blast Holes) = **$680,894**



Notes:
1. Assumes continuous drill/load/blast sequence with loading and blasting time being roughly equivalent to drilling time.
2. All explosive supplies (i.e. explosives, primers, etc.) are included in explosives cost.

References: Tables 24-1-1, 24-1-2, 24-2-3, and 24-3-1.

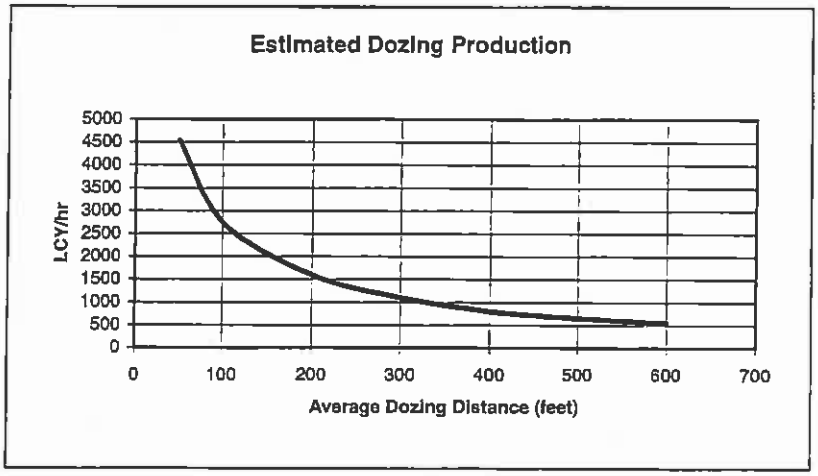
Table:	24-3-03
Mine Area:	J-16
Project:	Backfill Mine Pits
Task:	Doze Highwall
Equipment:	D11R Dozer

Earthmoving Activity:
Doze blasted highwall reduction material into pit

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Productivity Adjustment Factor = Operator Factor 0.75 x Material Factor 1.00 x Grade Correction 1.4 x Density Correction 0.82 x Production Method 1.00 x Visibility 1.0 x Elevation 1.00 x Direct Drive Trans 1.00 = **0.86**

Net Hourly Production = Normal Hourly Production (see graph above) 1,600 x Productivity Adjustment Factor 0.86 = **1,380 cy/hr**

Hours Required = Volume to be Moved 1,048,088 / Net Hourly Production 1,380 x Work Schedule Factor 1.371 = **1,042 Hours**

Quantity of Material to be Moved (cy)
1,048,088

Note: Quantity of material to be moved includes swelled highwall reduction volume from Table 24-2-3 less 25% for blast casting

References: Tables 24-2-3 and 24-3-2, and Cat Handbook, Ed. 28

Table:	24-3-04
Mine Area:	J-16
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze first two spoil ridges (first two spoils go into pit)

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

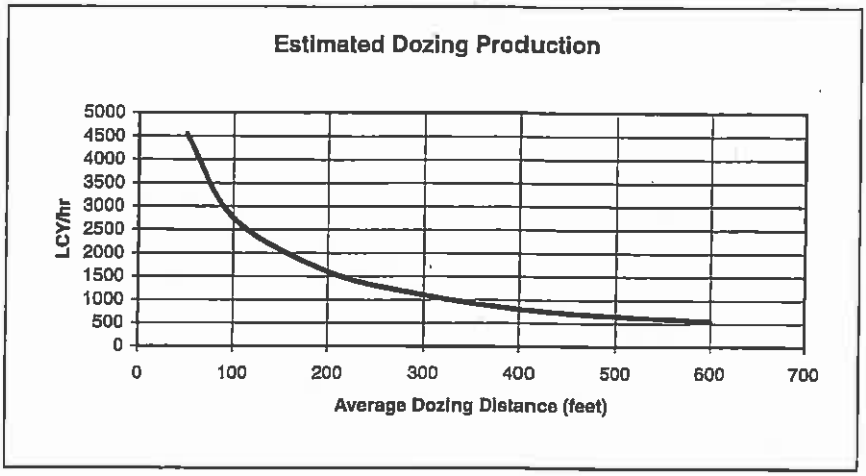
Poor Visibility

(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
2,381,300



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.4 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **1.04**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 1.04 (Productivity Adjustment Factor) = **1,656 cy/hr**

Hours Required = 2,381,300 (Volume to be Moved) / 1,656 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **1,972 Hours**

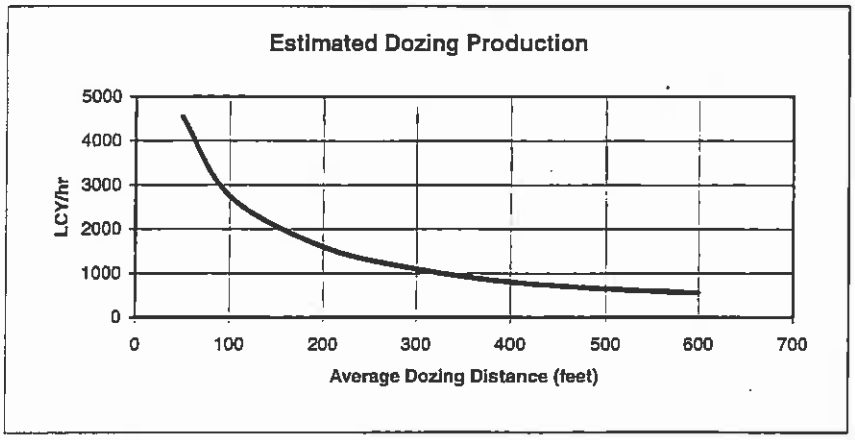
References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-05
Mine Area:	J-16
Project:	Backfill Mine Pits
Task:	Doze Back Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze back two spoil ridges

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	100
Hourly production (from chart)	2,800
Grade (in percent)	-10
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.20 (Material Factor) x 1.2 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.89**

Productivity Adjustment Factors	
Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Cable controlled blade (.6)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes

Net Hourly Production = 2,800 (Normal Hourly Production (see graph above)) x 0.89 (Operating Adjustment Factor) = **2,484 cy/hour**

Hours Required = 493,370 (Volume to be Moved) / 2,484 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **272 hours**

Quantity of Material to be Moved (cy)
493,370

References: Table 24-2-3, Cat Handbook, Ed. 28.

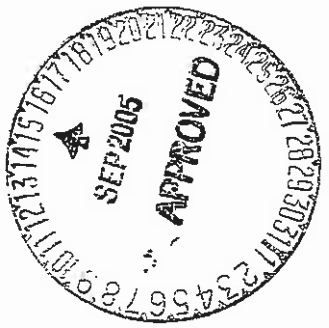


Table:	24-3-06
Mine Area:	J-16
Project:	Backfill and Grade Ramps
Task:	Backfill/Grade Ramps
Equipment:	D11R Dozer

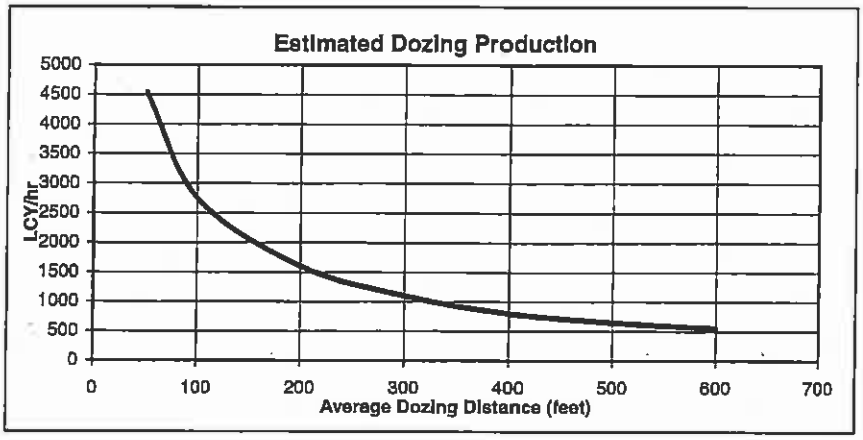
Characterization of Dozer Used (type, size, etc):

D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustment Factor

=	0.75 Operating Factor	x	1.20 Material Factor	x	1.00 Grade Correction	x	0.82 Density Correction			
x	1.00 Production Method	x	1.00 Visibility	x	1.00 Elevation	x	1.00 Direct Drive Trans	=	0.74	

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = **1,183 cy/hr**

Hours Required = 711,000 (Volume to be Moved) / 1,183 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **824 hours**

Productivity Adjustment Factor

Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)

711000

References: Table 24-2-4, Cat Handbook, Ed. 28

Table:	24-3-07
Mine Area:	J-16
Project:	General Grading
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

230 acres

Hours Required	=	230 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	= 2,523 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-5

Table:	24-3-08
Mine Area:	J-16
Project:	Surface Stabilization
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement
58,580 lineal feet

Hours Required	=	58,580 / Terrace Requirement (ft)	1,060 x Production Rate (ft/hr)	1.371 = Work Schedule Factor	76 Hours

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-09
Mine Area:	J-16
Project:	Surface Stabilization
Task:	Grade Drainages/Downdrains
Equipment:	D7R Dozer

Earthmoving Activity
Grade drainages and downdrains.

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 800

Drainages/Downdrains Requirement
9,600 lineal feet

Hours Required	=	9,600 Drainages/Downdrain Requirement (ft)	/	800 Production Rate (ft/hr)	x	1.371 Work Schedule Factor	=	**16 Hours**

Note: Production rate based on average grading speed of 2 mph and 12 passes (PWCC experience).

Reference: Table 24-2-6

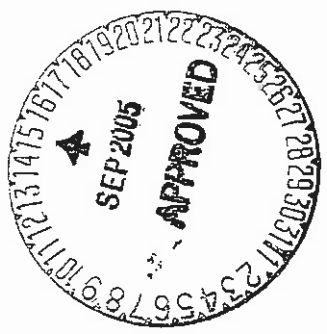


Table:	24-3-10	Page 1
Mine Area:	J-16	
Project:	Surface Stabilization	
Task:	Load, haul, and place riprap	
Equipment:	988F Loader Series II	
	769D Rear Dump Truck	

Earthmoving Activity

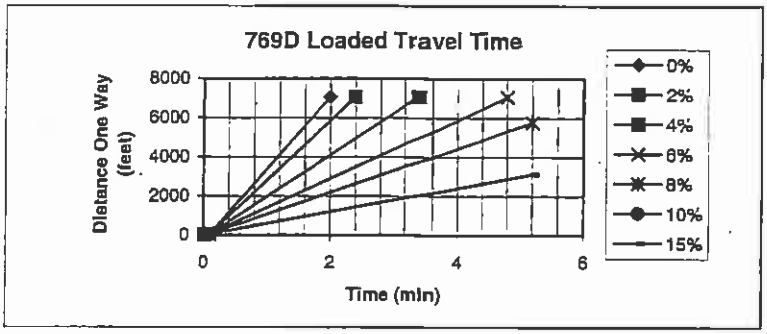
Load, haul,and place riprap in main channels and downdrains.

Characterization of Equipment Used (type, size, etc):

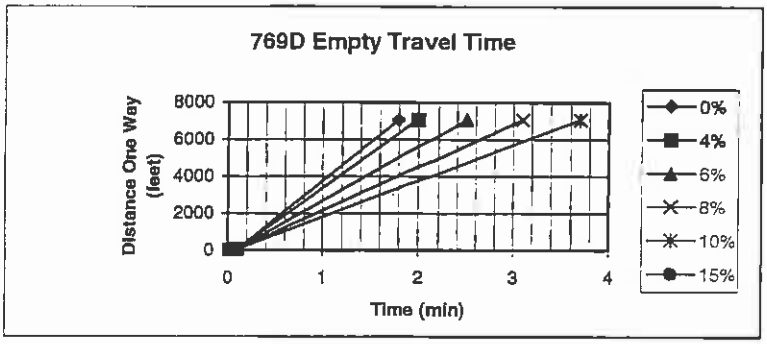
988F Loader Series II - bucket capacity	7.8	cy
769D Rear Dump Truck - truck capacity	30.9	cy

Loading and Haulage

Productivity Factors	
Basic Loader Cycle (min)	0.58
Bulky Material (min)	0.03
Dumped Pile (min)	0.02
Common Loader/Truck Ownership (min)	-0.04
Work Hour Factor (50 min/hr)	0.83
Bucket Fill Factor	0.85
Truck Loaded Volume-4 passes (cy)	26.52
Haulage Distance (ft)	3,500
Effective Grade (%) (loaded)	1



Production Times	
Haul Time (min)	1.1
Dump Time (min)	1.1
Return Time (min)	1.70
Truck/Loader Match (trucks per loader)	2
Riprap Haulage Requirement (cy)	21,150



Placement

Riprap Placement Requirement (ft)	6,340
Placement Rate (ft/shift)	500
Shift (hours)	8

Table: 24-3-10 (cont.) Page 2
Mine Area: J-16
Project: Surface Stabilization
Task: Load, haul, and place riprap
Equipment: 988F Loader Series II
769D Rear Dump Truck

Load Summary

Loader Cycle Time = (0.58 Basic Loader Cycle Time + 0.03 Bulky Material + 0.02 Dumped Pile + -0.04 Common Leader/Truck) = 0.59 min

Loader Volume per Cycle = 7.80 Bucket Capacity x 0.85 Bucket Fill Factor = 6.63 cy

Loader Cycle Time (per truck) = 0.59 Loader Cycle Time x 4 Passes per Truck = 2.36 min

Haul Summary

Truck Cycle Time = 2.36 Load Time + 1.1 Haul Time + 1.1 Dump Time + 1.70 Return Time = 6.26 min

Fleet Productivity = (2 Loader/Truck Match x 26.52 Truck Loaded Volume) / (2 Loader/Truck Match x 6.26 Truck Cycle Time) x 60 min/hr = 254 cy/hr

Required Fleet Hours = 21,150 Riprap Haulage Requirement / 254 Fleet Productivity x 1.371 Work Schedule Factor = **114 hrs**

Placement Summary

Required Loader Hours = (6,340 Riprap Placement Requirement / 500 Placement Rate) x 8 Operating Shift x 1.371 Work Schedule Factor = **139 hrs**

Notes: Riprap placement rate based on PWCC experience. Riprap placement length based on 20 percent of main channels and 50 percent of downdrain channels.

References: Table 24-2-6, Cat Handbook, Ed. 28.

Table:	24-3-11
Mine Area:	J-16
Project:	Topsoil/Suitable Material Replacement
Task:	Suitable Material Placement
Equipment:	637E P-P Scraper

Earthmoving Activity

Haul and place suitable material to graded spoil areas

Characterization of Equipment Used

637E P-P Scraper - capacity	31	cy

Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

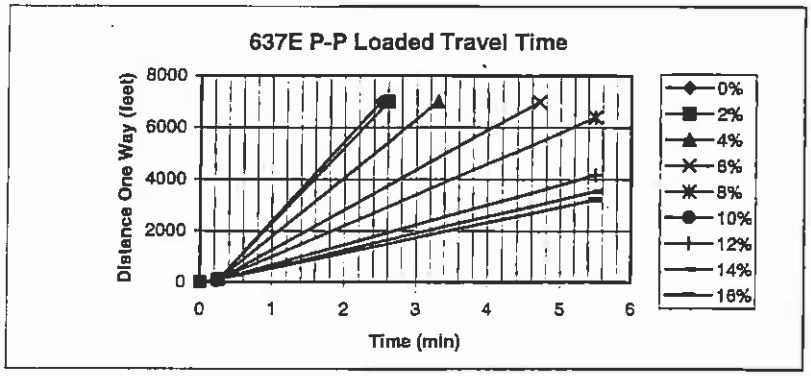
Loaded Distance (ft)	700
Loaded Grade (%)	-5
Loaded Effective Grade (%)	0
Empty Distance (ft)	700
Empty Grade (%)	5
Empty Effective Grade (%)	10

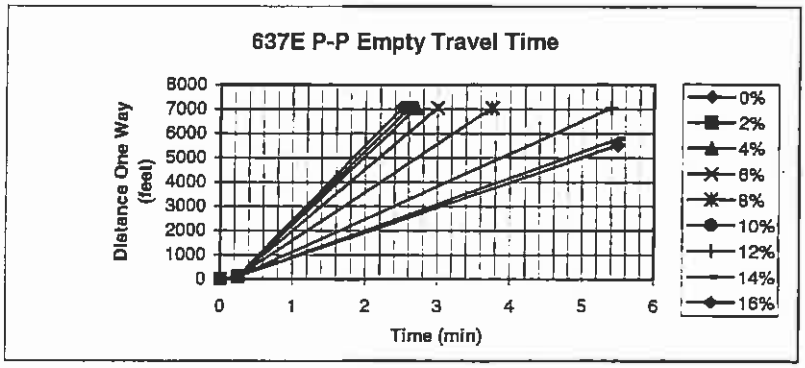
Production Times

Typical Load Time for 637E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved (cy)

645,850





Cycle Time	=	1.0 Load Time	+	0.4 Loaded Trip Time	+	0.6 Maneuver and Spread Time	+	0.6 Empty Trip Time	= 2.6 min

Cycles/Hour	=	60 min/hr	/	2.6 Cycle Time	= 23 cycles/hr

Hourly Production	=	31 Adjusted Load (cy)	x	23.08 Cycles/ Hour	=	715 cy/hr

Hours Required	=	645,850 Volume	/	715 Hourly Production	x	1.371 Work Schedule Factor	= 1,238 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-12
Mine Area:	J-16
Project:	Topsoil/Suitable Material Replacement
Task:	Topsoil Replacement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place topsoil onto graded spoil areas

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

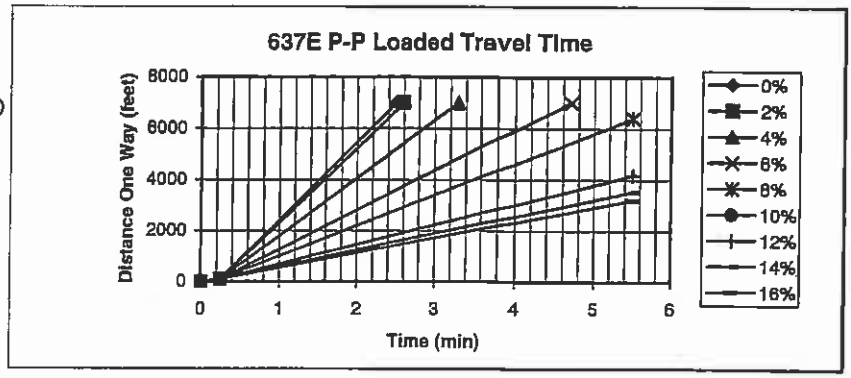
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

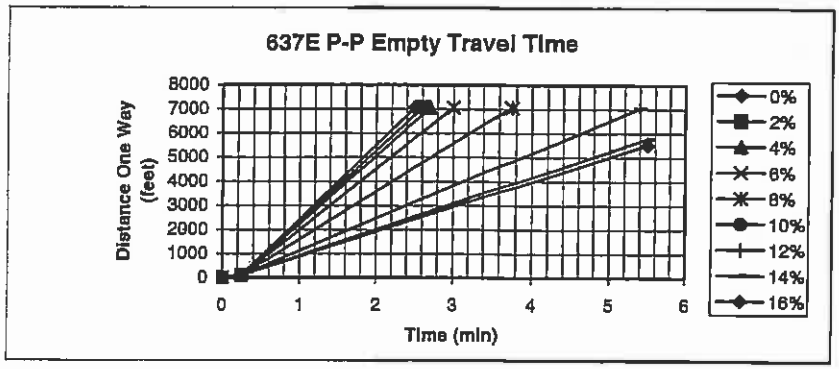
Loaded Distance (ft)	1,400
Loaded Grade (%)	-4.0
Loaded Effective Grade (%)	1.0
Empty Distance (ft)	1,400
Empty Grade (%)	4.0
Emply Effective Grade (%)	9.0

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.5
Empty Travel Time (from chart)	0.9

Quantity of Material to be Moved (cy)
1,076,416





Cycle Time =	1.0 Load Time	+	0.5 Loaded Trip Time	+	0.6 Maneuver and Spread Time	+	0.9 Empty Trip Time	= 3.0 min

Cycles/Hour =	60 min/hr	/	3.0 Cycle Time	=	20 cycles/hr
Hourly Production =	31 Adjusted Load (cy)	x	20.00 Cycles/ Hour	=	620 cy/hr

Hours Required =	1,076,416 Volume	/	620 Hourly Production	x	1.371 Work Schedule Factor	= 2381.012 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-13
Mine Area:	J-16
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
J-16 Mining Area (Category I)

Revegetation Area

Area (acre)	417
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 417 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$517,497**

Reseeding Costs = 417 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$169,302**

References: Table 24-1-3 and 24-2-7.

Table:	24-3-14
Mine Area:	J-16
Project:	Revegetation
Task:	Revegetation of Topsoil Stockpile
Equipment:	Miscellaneous

Revegetation Area Description
J-16 Mining Area (Category I) - Topsoil Stockpiles

Revegetation Area

Area (acre)	10.5
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 11 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$13,031**

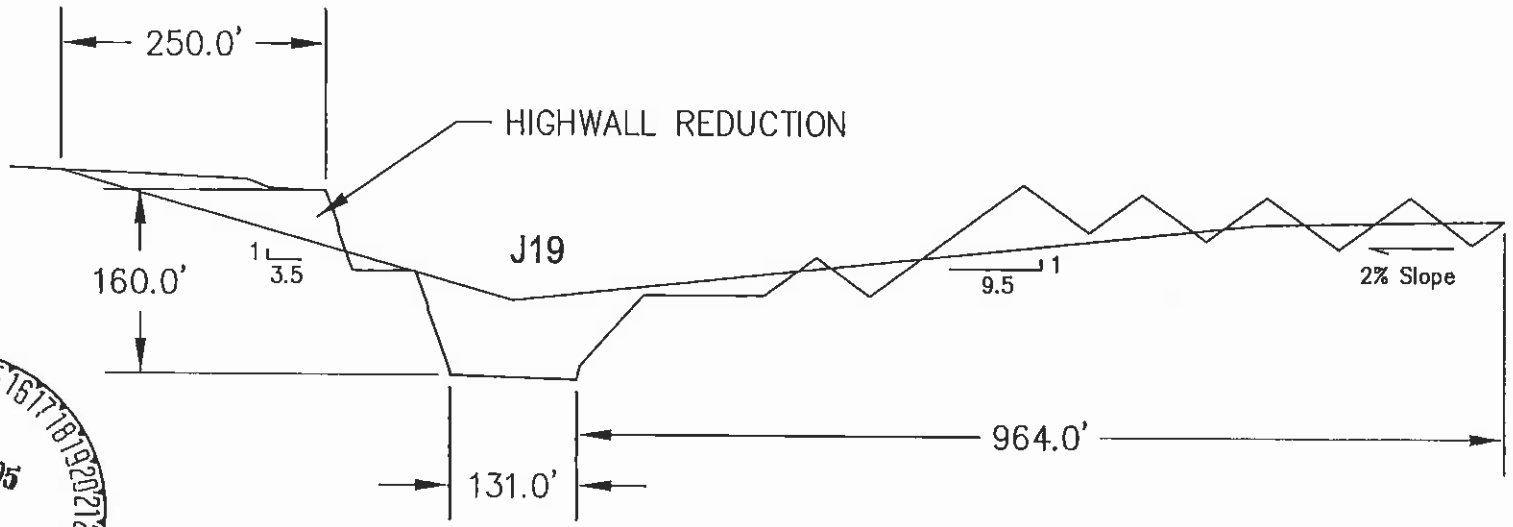
Reseeding Costs = 11 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$4,263**

References: Table 24-1-3 and 24-2-7.

MINE AREA: J19

Worksheet No. 24-3-1

Earthwork Quantity Worksheet



SEP 2005
APPROVED

HIGHWALL REDUCTION

Area = 8,890
Pit Length = 39,900
Volume = 13,137,444
Swelled Volume = 16,421,800

SPOIL TO OPEN PIT

Spoil 1,2 = 13,817,220

SPOIL GRADING

Spoil 3,4 = 2,793,000

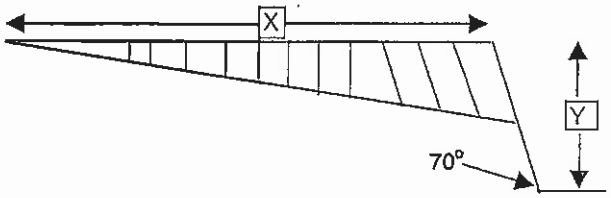
SCALE
100' 0 100' 200'
CONTOUR INTERVAL N/A

AutoCAD: J19FinalSection.dwg

Table:	24-3-02	Page 1
Mine Area:	J-19	
Project:	Highwall Reduction	
Task:	Cast/Blast Highwall	
Equipment:	Drltech D55SP	

Activity Description
Drill, load, and blast highwall

Drill Rig is Drltech D55SP



Highwall Reduction Dimensions:

X (feet)	250
Y (feet)	160
Number of Rows	10

Drill Pattern (Cast) - 21'x24'

Hole Diameter (inches)	10 5/8
Powder Factor (lbs/cy)	0.65
Explosive Weight (lbs)[1] (single hole sequence)	2,302

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
1	21	70	1300
2	42	63	1181
3	63	57	1061
Total	126	190	3,542

Drill Pattern (Blast) - 21'x24'

Hole (inches)	9 7/8
Powder Factor (lbs/cy)	0.55
Explosive Weight (lbs)[2] (single hole sequence)	2,111

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
4	84	47	885
5	105	41	773
6	126	35	661
7	147	29	549
8	168	23	437
9	189	17	321
10	210	11	210
Total	1,029	206	3,838

Notes:
1. Weight of explosives (cast rows, 1,2, and 3) based on total overburden volume and powder factor (0.65 lbs/cy).
2. Weight of explosives (blast rows, 4 and up) based on total overburden volume and powder factor (0.55 lbs/cy).

Table: 24-3-02 (cont. Page 2
Mine Area: J-19
Project: Highwall Reduction
Task: Cast/Blast Highwall
Equipment: Driltech D55SP

Activity Description
Drill, load, and blast highwall

Drill Rig is Driltech D55SP

Assumptions

Drilling Rate (ft/hr)	150
Bit Life (hrs)	
Cast 10 5/8"	370
Blast 9 7/8"	170

Unit Costs

Bit Cost (per bit)	
Cast 10 5/8"	$2,400
Blast 9 7/8"	$1,800
Explosives (per pound)[2]	$0.10
Drill Cost (per hour)	$196.78

Labor Costs

Driller Rate (per hour)	$26.59
Blaster Rate (per hour)	$27.67
Driller/Blaster Helper Rate (per hour)	$13.14

Cast Holes (Rows 1-3)

Total Drill Footage = (39,900 Pit Length / 24 Drill Hole Spacing) x 190 Total Drillhole Footage (Rows 1-3) = **315,422 feet**

Total Overburden Volume = (39,900 Pit Length / 24 Drill Hole Spacing) x 3,542 Total Overburden Volume (Rows 1-3) = **5,887,883 cy**

Drilling Time = 315,422 Total Drill Footage / 150 Drilling Rate x 1.371 Work Schedule Factor = **2,884 hours**

Drilling Cost = 2,884 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate) + (1/370 Bit Life x $2,400 Bit Cost) = **$700,781**

Load and Blast Cost[1] = (2,884 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate) + (5,887,883 Total Overburden Volume x 0.65 Powder Factor x $0.10 Explosive Cost) = **$1,431,238**

Blast Holes (Rows 4 and up)

Total Drill Footage = (39,900 Pit Length / 24 Drill Hole Spacing) x 206 Total Drillhole Footage (Rows 4 and up) = **341,799 feet**

Total Overburden Volume = (39,900 Pit Length / 24 Drill Hole Spacing) x 3,838 Total Overburden Volume (Rows 4 and up) = **6,380,254 cy**

Drilling Time = 341,799 Total Drill Footage / 150 Drilling Rate x 1.371 Work Schedule Factor = **3,125 hours**

Drilling Cost = 3,125 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate) + (1/170 Bit Life x $1,800 Bit Cost) = **$772,202**

Load and Blast Cost[1] = (3,125 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate) + (6,380,254 Total Overburden Volume x 0.55 Powder Factor x $0.10 Explosive Cost) = **$1,487,121**

Total Cost

$700,781 Drilling Cost (Cast Holes) + $1,431,238 Load and Blast Cost[1] (Cast Holes) + $772,202 Drilling Cost (Blast Holes) + $1,487,121 Load and Blast Cost[1] (Blast Holes) = **$4,391,342**

Notes:
1. Assumes continuous drill/load/blast sequence with loading and blasting time being roughly equivalent to drilling time.
2. All explosive supplies (i.e. explosives, primers, etc.) are included in explosives cost.

References: Tables 24-1-1, 24-1-2, 24-2-3, and 24-3-1.

Table:	24-3-03
Mine Area:	J-19
Project:	Backfill Mine Pits
Task:	Doze Highwall
Equipment:	D11R Dozer

Earthmoving Activity:
Doze blasted highwall reduction material into pit

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

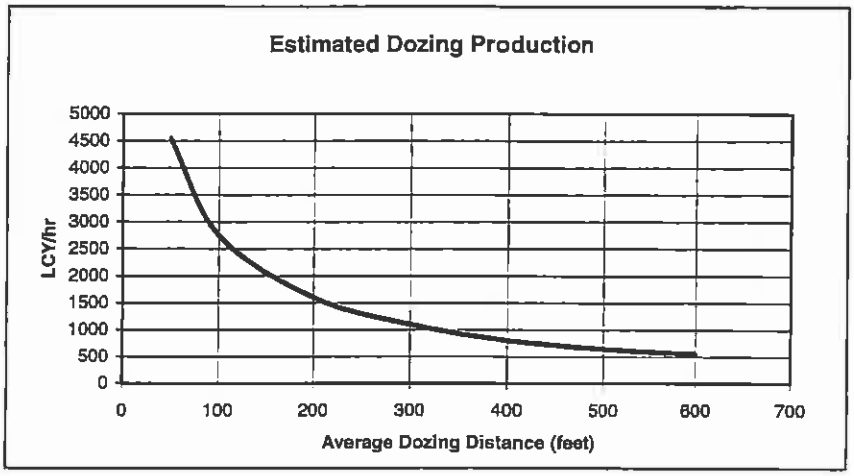
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
12,316,350



Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.00 (Material Factor) x 1.4 (Grade Correction) x 0.82 (Density Correction)
x 1.00 (Production Method) x 1.0 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 0.86

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.86 (Productivity Adjustment Factor) = 1,380 cy/hr

Hours Required = 12,316,350 (Volume to be Moved) / 1,380 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 12,240 Hours

Note: Quantity of material to be moved includes swelled highwall reduction volume from Table 24-2-3 less 25% for blast casting

References: Tables 24-2-3 and 24-3-2, and Cat Handbook, Ed. 28

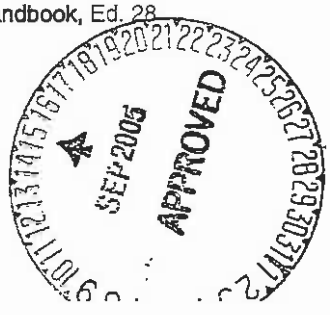
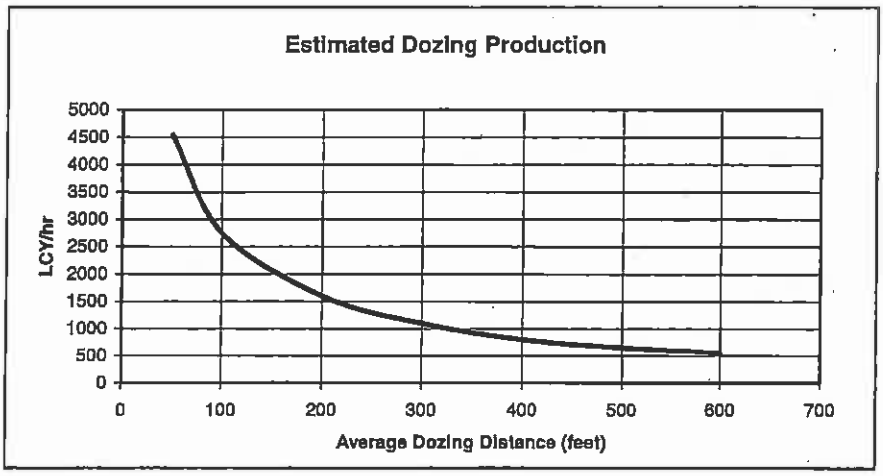


Table:	24-3-04
Mine Area:	J-19
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze first two spoil ridges (first two spoils go into pit)

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustments

Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes

Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.4 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **1.04**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 1.04 (Productivity Adjustment Factor) = **1,656 cy/hr**

Hours Required = 13,817,220 (Volume to be Moved) / 1,656 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **11,443 Hours**

Quantity of Material to be Moved (cy)
13,817,220

References: Table 24-2-3, Cat Handbook, Ed. 28.

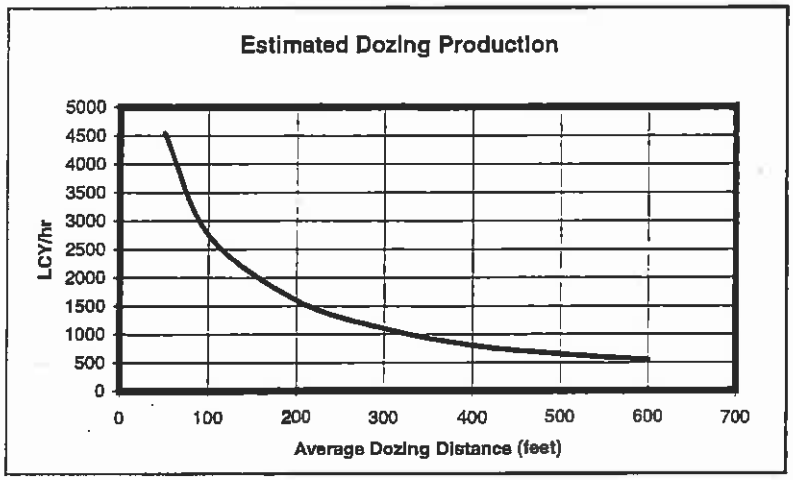
Table:	24-3-05
Mine Area:	J-19
Project:	Backfill Mine Pits
Task:	Doze Back Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze back two spoil ridges

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	100
Hourly production (from chart)	2,800
Grade (in percent)	-10
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Cable controlled blade (.6)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.20 (Material Factor) x 1.2 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.89**

Net Hourly Production = 2,800 (Normal Hourly Production (see graph above)) x 0.89 (Operating Adjustment Factor) = **2,484 cy/hour**

Hours Required = 2,793,000 (Volume to be Moved) / 2,484 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **1,542 hours**

Quantity of Material to be Moved (cy)
2,793,000

References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-06
Mine Area:	J-19
Project:	Backfill and Grade Ramps
Task:	Backfill/Grade Ramps
Equipment:	D11R Dozer

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

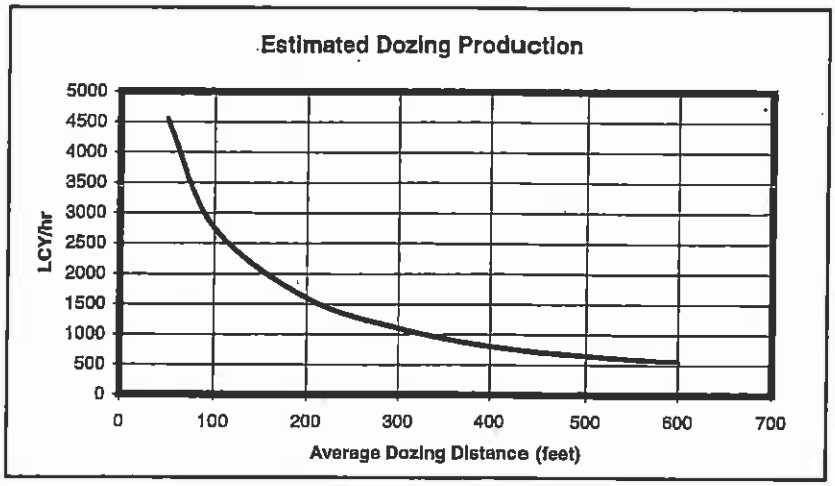
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visiblity (i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor <7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
6812151



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.00 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.74**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = **1,183 cy/hr**

Hours Required = 6,812,151 (Volume to be Moved) / 1,183 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **7,898 hours**

References: Table 24-2-4, Cat Handbook, Ed. 28

Table:	24-3-07
Mine Area:	J-19
Project:	General Grading
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

488 acres

Hours Required	=	488 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 = Work Schedule Factor	5,354 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-5

Table:	24-3-08
Mine Area:	J-19
Project:	Surface Stabilization
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement
166,170 lineal feet

Hours Required	=	166,170 / Terrace Requirement (ft)	1,060 x Production Rate (ft/hr)	1.371 = Work Schedule Factor	215 Hours

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-09
Mine Area:	J-19
Project:	Surface Stabilization
Task:	Grade Drainages/Downdrains
Equipment:	D7R Dozer

Earthmoving Activity
Grade drainages and downdrains.

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 800

Drainages/Downdrains Requirement
16,900 lineal feet

Hours Required	=	16,900 / Drainages/Downdrain Requirement (ft)	800 x Production Rate (ft/hr)	1.371 = Work Schedule Factor	29 Hours

Note: Production rate based on average grading speed of 2 mph and 12 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-10	Page 1
Mine Area:	J-19	
Project:	Surface Stabilization	
Task:	Load, haul, and place riprap	
Equipment:	988F Loader Series II	
	769D Rear Dump Truck	

Earthmoving Activity

Load, haul,and place riprap in main channels and downdrains.

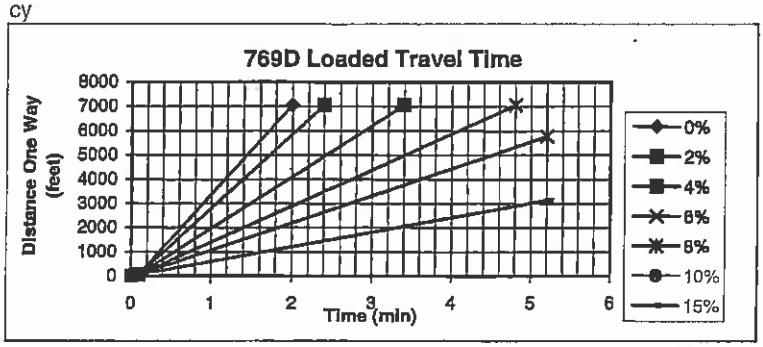
Characterization of Equipment Used (type, size, etc):

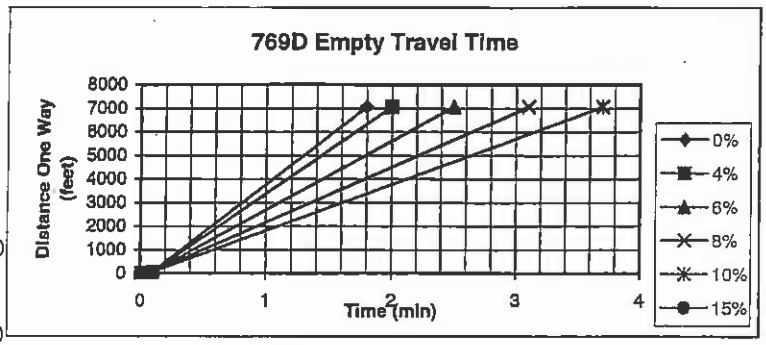
988F Loader Series II - bucket capacity	7.8	cy
769D Rear Dump Truck - truck capacity	30.9	cy

Loading and Haulage

Productivity Factors

Basic Loader Cycle (min)	0.58
Bulky Material (min)	0.03
Dumped Pile (min)	0.02
Common Loader/Truck Ownership (min)	-0.04
Work Hour Factor (50 min/hr)	0.83
Bucket Fill Factor	0.85
Truck Loaded Volume-4 passes (cy)	26.52
Haulage Distance (ft)	4,500
Effective Grade (%)	6





Production Times

Haul Time (min)	3.0
Dump Time (min)	1.1
Return Time (min)	1.6
Truck/Loader Match (trucks per loader)	3
Riprap Haulage Requirement (cy)	54,750

Placement

Riprap Placement Requirement (ft)	16,430
Placement Rate (ft/shift)	500
Shift (hours)	8

Table: 24-3-10 (cont.) Page 2
Mine Area: J-19
Project: Surface Stabilization
Task: Load, haul, and place riprap
Equipment: 988F Loader Series II
769D Rear Dump Truck

Load Summary

Loader Cycle Time	= 0.58 Basic Loader Cycle Time	+	0.03 Bulky Material	+	0.02 Dumped Pile	+	-0.04 Common Leader/Truck	=	0.59 min
Loader Volume per Cycle	= 7.80 Bucket Capacity	x	0.85 Bucket Fill Factor	=	6.63 cy				
Loader Cycle Time (per truck)	= 0.59 Loader Cycle Time	x	4 Passes per Truck	=	2.36 min				

Haul Summary

Truck Cycle Time	= 2.36 Load Time	+	3.0 Haul Time	+	1.1 Dump Time	+	1.60 Return Time	=	8.06 min			
Fleet Productivity	=(3 Loader/Truck Match	x	26.52 Truck Loaded Volume	)/(	3 Loader/Truck Match	x	8.06 Truck Cycle Time	)x	60 min/hr	=	197	cy/hr
Required Fleet Hours	= 54,750 Riprap Haulage Requirement	/	197 Fleet Productivity	x	1.371 Work Schedule Factor	=	**380 hrs**					

Placement Summary

Required Loader Hours	=(16,430 Riprap Placement Requirement	/	500 Placement Rate	)x	8 Operating Shift	x	1.371 Work Schedule Factor	=	**360.5 hrs**

Notes: Riprap placement rate based on PWCC experience. Riprap placement length based on 20 percent of main channels and 50 percent of downdrain channels.

References: Table 24-2-6, Cat Handbook, Ed. 28.

Table:	24-3-11
Mine Area:	J-19
Project:	Topsoil/Suitable Material Replacement
Task:	Suitable Material Placement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place suitable material to graded spoil areas

Characterization of Equipment Used
637E P-P Scraper - capacity 31 cy

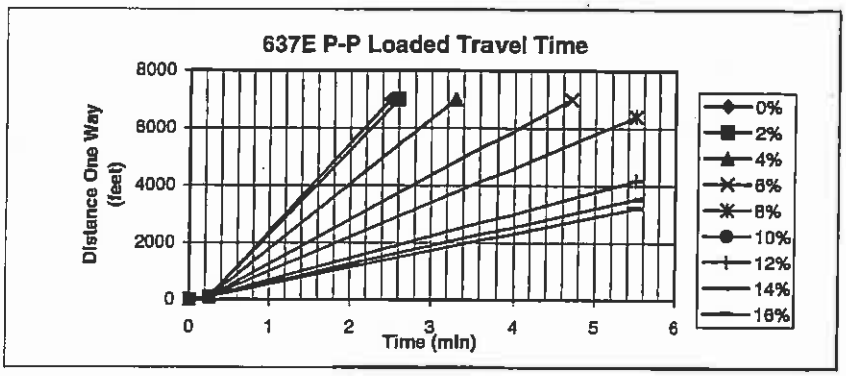
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

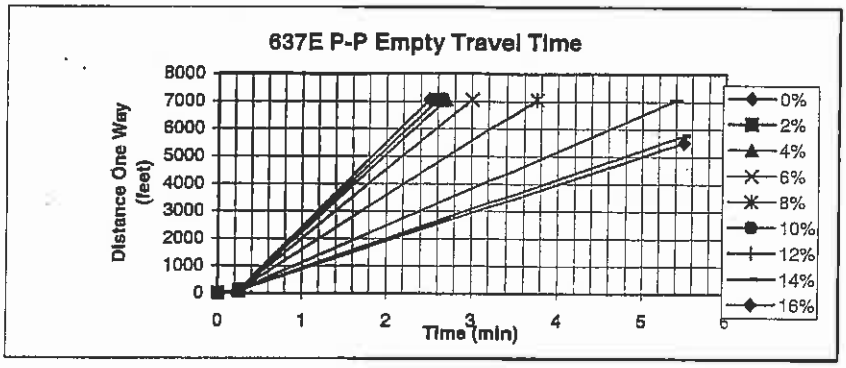
Loaded Distance (ft)	700
Loaded Grade (%)	-5
Loaded Effective Grade (%)	0
Empty Distance (ft)	700
Empty Grade (%)	5
Empty Effective Grade (%)	10

Production Times

Typical Load Time for 637E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved (cy)
4,337,948





Cycle Time = 1.0 (Load Time) + 0.4 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.6 (Empty Trip Time) = 2.6 min

Cycles/Hour = 60 min/hr / 2.6 Cycle Time = 23 cycles/hr

Hourly Production = 31 Adjusted Load (cy) x 23.08 Cycles/Hour = 715 cy/hr

Hours Required = 4,337,948 Volume / 715 Hourly Production x 1.371 Work Schedule Factor = 8,316 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-12
Mine Area:	J-19
Project:	Topsoil/Suitable Material Replacement
Task:	Topsoil Replacement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place topsoil onto graded spoil areas

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

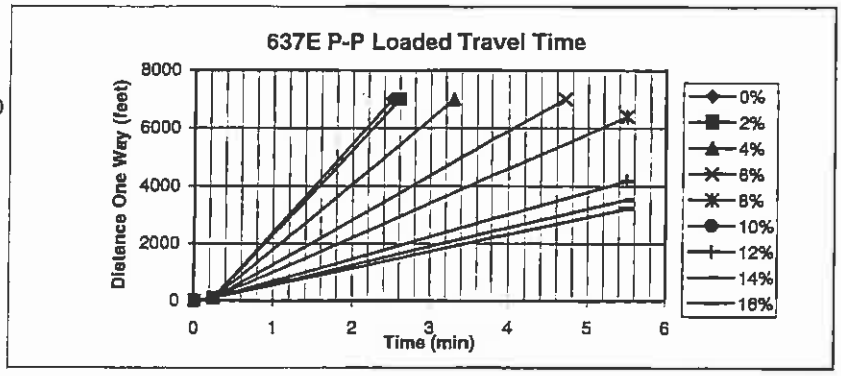
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

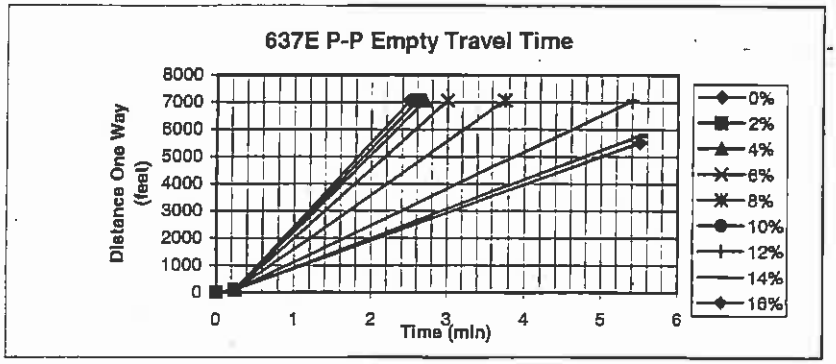
Loaded Distance (ft)	1,900
Loaded Grade (%)	2.5
Loaded Effective Grade (%)	7.5
Empty Distance (ft)	1,900
Empty Grade (%)	-2.5
Empty Effective Grade (%)	2.5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	1.6
Empty Travel Time (from chart)	0.8

Quantity of Material to be Moved
7,229,913 cy





Cycle Time = 1.0 (Load Time) + 1.6 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.8 (Empty Trip Time) = 4.0 min

Cycles/Hour = 60 (min/hr) / 4.0 (Cycle Time) = 15 cycles/hr

Hourly Production = 31 (Adjusted Load (cy)) x 15.00 (Cycles/Hour) = 465 cy/hr

Hours Required = 7,229,913 (Volume) / 465 (Hourly Production) x 1.371 (Work Schedule Factor) = 21323 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-13
Mine Area:	J-19
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
J-19 Mining Area (Category I)

Revegetation Area

Area (acre)	2,801
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 2,801 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$3,475,848**

Reseeding Costs = 2,801 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$1,137,143**

References: Table 24-1-3 and 24-2-7.

Table:	24-3-14
Mine Area:	J-19
Project:	Revegetation
Task:	Revegetation of Topsoil Stockpile
Equipment:	Miscellaneous

Revegetation Area Description

J-19 Mining Area (Category I) - Topsoil Stockpiles

Revegetation Area	
Area (acre)	166.7
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 167 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$206,875**

Reseeding Costs = 167 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$67,680**

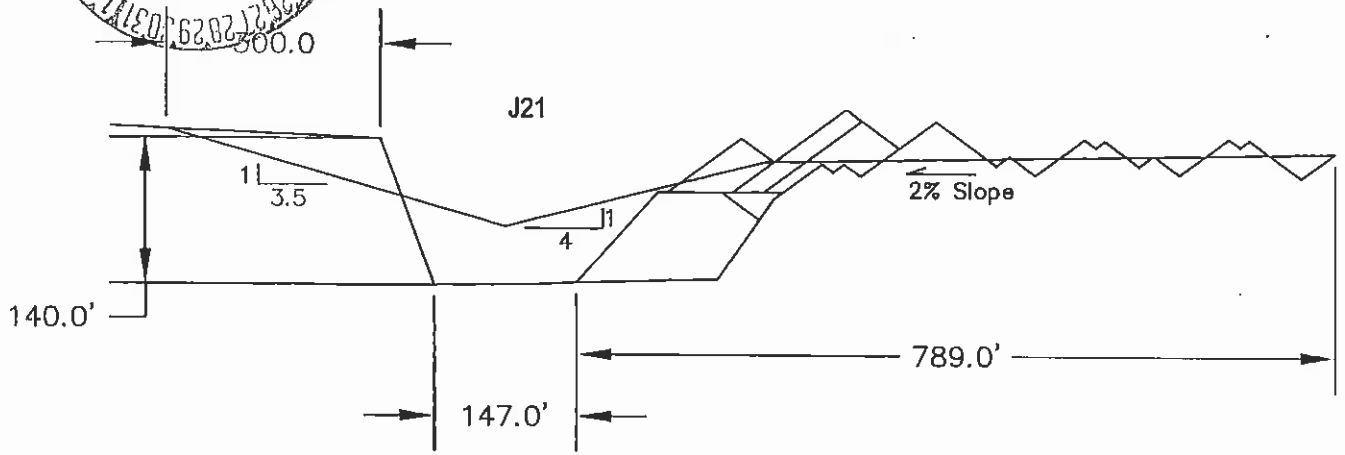
References: Table 24-1-3 and 24-2-7.

SEP 2005
APPROVED

MINE AREA: J21 - SINGLE PIT

Worksheet No. 24-3-1

Earthwork Quantity Worksheet



HIGHWALL REDUCTION

Area = 6470

Pit Length = 16,000

Volume = 3,834,100

Swelled Volume = 4,792,600

SPOIL TO OPEN PIT

Spoil 1,2 = 4,195,560

SPOIL GRADING

Spoil 3,4 = 1,173,330

SCALE

100' 0 100' 200'

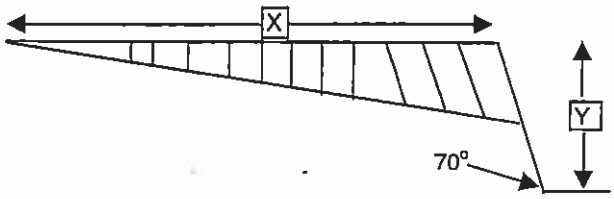
CONTOUR INTERVAL N/A

AutoCAD: J21FinalSection.dwg

Table: 24-3-02 Page 1
Mine Area: J-21Single Width
Project: Highwall Reduction
Task: Cast/Blast Highwall
Equipment: Drlltech D55SP

Activity Description
Drill, load, and blast highwall

Drill Rig is Drlltech D55SP



Highwall Reduction Dimensions:

X (feet)	300
Y (feet)	140
Number of Rows	11

Drill Pattern (Cast) - 21'x24'

Hole Diameter (inches)	10 5/8
Powder Factor (lbs/cy)	0.65
Explosive Weight (lbs)[1] (single hole sequence)	1,666

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
1	21	49	924
2	42	46	854
3	63	42	785
Total	126	137	2,563

Drill Pattern (Blast) - 21'x24'

Hole (inches)	9 7/8
Powder Factor (lbs/cy)	0.55
Explosive Weight (lbs)[2] (single hole sequence)	1,951

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
4	84	36	672
5	105	33	607
6	126	29	541
7	147	26	476
8	168	22	411
9	189	19	345
10	210	15	280
11	231	12	215
Total	1,260	190	3,547

Notes:
1. Weight of explosives (cast rows, 1,2, and 3) based on total overburden volume and powder factor (0.65 lbs/cy).
2. Weight of explosives (blast rows, 4 and up) based on total overburden volume and powder factor (0.55 lbs/cy).

Table: 24-3-02 (cont. Page 2
Mine Area: J-21Single Width
Project: Highwall Reduction
Task: Cast/Blast Highwall
Equipment: Driltech D55SP

Activity Description
Drill, load, and blast highwall

Drill Rig is Driltech D55SP

Assumptions

Drilling Rate (ft/hr)	150
Bit Life (hrs)	
Cast 10 5/8"	370
Blast 9 7/8"	170

Unit Costs

Bit Cost (per bit)	
Cast 10 5/8"	$2,400
Blast 9 7/8"	$1,800
Explosives (per pound)[2]	$0.10
Drill Cost (per hour)	$196.78

Labor Costs

Driller Rate (per hour)	$26.59
Blaster Rate (per hour)	$27.67
Driller/Blaster Helper Rate (per hour)	$13.14

Cast Holes (Rows 1-3)

Total Drill Footage = (16,000 Pit Length / 24 Drill Hole Spacing) x 137 Total Drillhole Footage (Rows 1-3) = 91,519 feet

Total Overburden Volume = (16,000 Pit Length / 24 Drill Hole Spacing) x 2,563 Total Overburden Volume (Rows 1-3) = 1,708,360 cy

Drilling Time = 91,519 Total Drill Footage / 150 Drilling Rate x 1.371 Work Schedule Factor = 837 hours

Drilling Cost = 837 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate
+ (1/370 Bit Life x $2,400 Bit Cost)) = **$203,331**

Load and Blast Cost[1] = (837 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate
+ (1,708,360 Total Overburden Volume x 0.65 Powder Factor x $0.10 Explosive Cost) = **$415,271**

Blast Holes (Rows 4 and up)

Total Drill Footage = (16,000 Pit Length / 24 Drill Hole Spacing) x 190 Total Drillhole Footage (Rows 4 and up) = 126,667 feet

Total Overburden Volume = (16,000 Pit Length / 24 Drill Hole Spacing) x 3,547 Total Overburden Volume (Rows 4 and up) = 2,364,444 cy

Drilling Time = 126,667 Total Drill Footage / 150 Drilling Rate x 1.371 Work Schedule Factor = 1,158 hours

Drilling Cost = 1,158 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate
+ (1/170 Bit Life x $1,800 Bit Cost)) = **$286,169**

Load and Blast Cost[1] = (1,158 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate
+ (2,364,444 Total Overburden Volume x 0.55 Powder Factor x $0.10 Explosive Cost) = **$551,109**

Total Cost

$203,331 Drilling Cost (Cast Holes) + $415,271 Load and Blast Cost[1] (Cast Holes) + $286,169 Drilling Cost (Blast Holes) + $551,109 Load and Blast Cost[1] (Blast Holes) = **$1,455,880**

Notes:
1. Assumes continuous drill/load/blast sequence with loading and blasting time being roughly equivalent to drilling time.
2. All explosive supplies (i.e. explosives, primers, etc.) are included in explosives cost.

References: Tables 24-1-1, 24-1-2, 24-2-3, and 24-3-1.

Table:	24-3-03
Mine Area:	J-21Single Width
Project:	Backfill Mine Pits
Task:	Doze Highwall
Equipment:	D11R Dozer

Earthmoving Activity:
Doze blasted highwall reduction material into pit

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

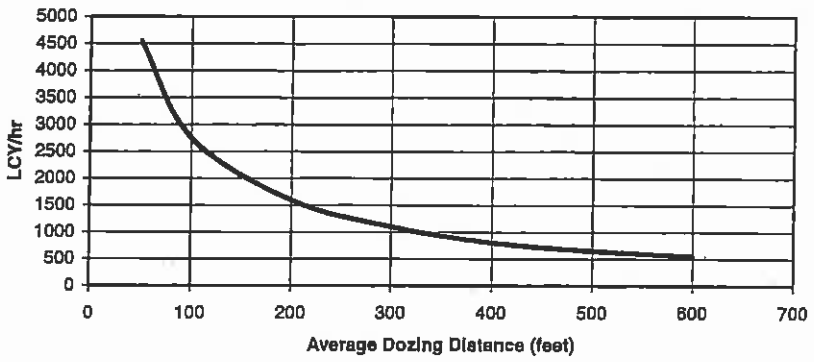
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
3,594,413



Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.00 (Material Factor) x 1.4 (Grade Correction) x 0.82 (Density Correction)
x 1.00 (Production Method) x 1.0 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 0.86

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.86 (Productivity Adjustment Factor) = 1,380 cy/hr

Hours Required = 3,594,413 (Volume to be Moved) / 1,380 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 3,572 Hours

Note: Quantity of material to be moved includes swelled highwall reduction volume from Table 24-2-3 less 25% for blast casting

References: Tables 24-2-3 and 24-3-2, and Cat Handbook, Ed. 28

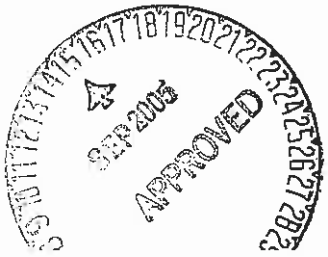
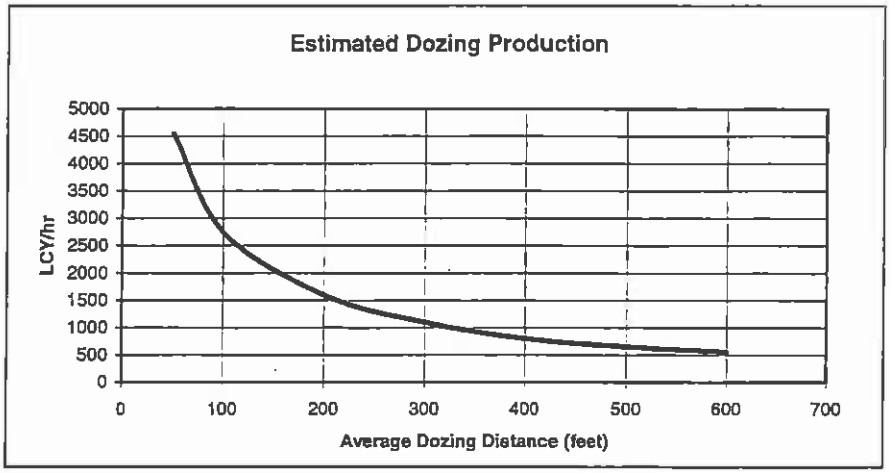


Table:	24-3-04
Mine Area:	J-21Single Width
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze first two spoil ridges (first two spoils go into pit)

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustment Factors

Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without till cyllner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes

Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.4 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **1.04**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 1.04 (Productivity Adjustment Factor) = **1,656 cy/hr**

Hours Required = 4,195,560 (Volume to be Moved) / 1,656 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **3,475 Hours**

Quantity of Material to be Moved (cy)
4,195,560

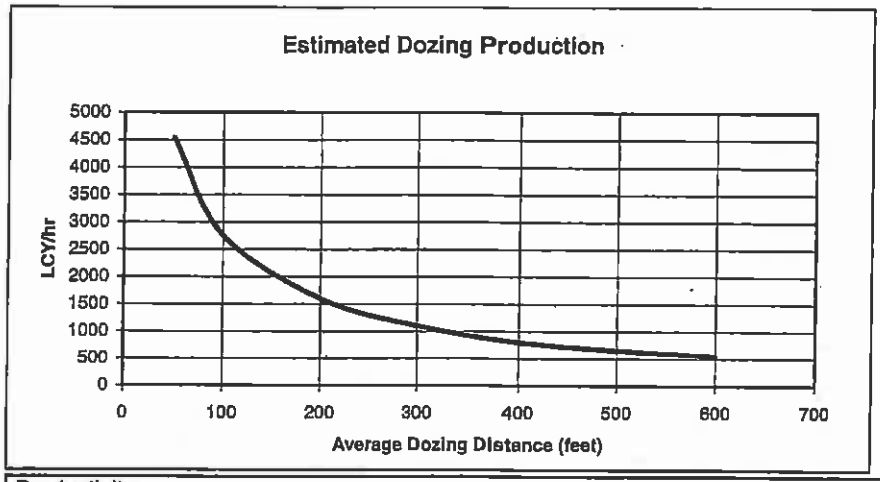
References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-05
Mine Area:	J-21Single Width
Project:	Backfill Mine Pits
Task:	Doze Back Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze back two spoil ridges

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	100
Hourly production (from chart)	2,800
Grade (in percent)	-10
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82
Productivity Adjustment Factors	
Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Cable controlled blade (.6)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes



Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.20 (Material Factor) x 1.2 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.89**

Net Hourly Production = 2,800 (Normal Hourly Production (see graph above)) x 0.89 (Operating Adjustment Factor) = **2,484 cy/hour**

Hours Required = 1,173,330 (Volume to be Moved) / 2,484 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **648 hours**

Quantity of Material to be Moved (cy)
1,173,330

References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-06
Mine Area:	J-21Single Width
Project:	Backfill and Grade Ramps
Task:	Backfill/Grade Ramps
Equipment:	D11R Dozer

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

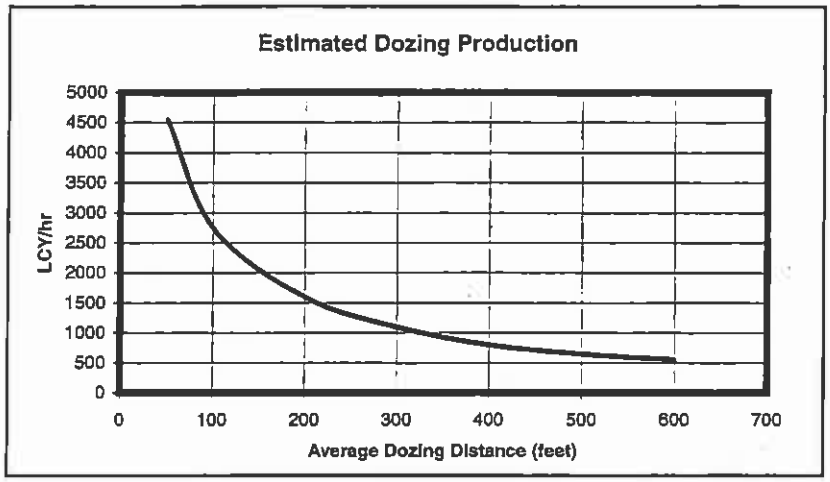
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
2623178



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.00 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.74**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = **1,183 cy/hr**

Hours Required = 2,623,178 (Volume to be Moved) / 1,183 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **3,041 hours**

References: Table 24-2-4, Cat Handbook, Ed. 28

Table:	24-3-07
Mine Area:	J-21Single Width
Project:	General Grading
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

200 acres

Hours Required	=	200 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 = Work Schedule Factor	2,194 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-5

Table:	24-3-08
Mine Area:	J-21Single Width
Project:	Surface Stabilization
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement
155,620 lineal feet

Hours Required	=	155,620 / Terrace Requirement (ft)	1,060 x Production Rate (ft/hr)	1.371 = Work Schedule Factor	201 Hours

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-09
Mine Area:	J-21Single Width
Project:	Surface Stabilization
Task:	Grade Drainages/Downdrains
Equipment:	D7R Dozer

Earthmoving Activity
Grade drainages and downdrains.

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 800

Drainages/Downdrains Requirement
24,430 lineal feet

Hours Required	=	24,430 / Drainages/Downdrain Requirement (ft)	800 Production Rate (ft/hr)	x 1.371 Work Schedule Factor	=	42 Hours

Note: Production rate based on average grading speed of 2 mph and 12 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-10 Page 1
Mine Area:	J-21Single Width
Project:	Surface Stabilization
Task:	Load, haul, and place riprap
Equipment:	988F Loader Series II
	769D Rear Dump Truck

Earthmoving Activity

Load, haul,and place riprap in main channels and downdrains.

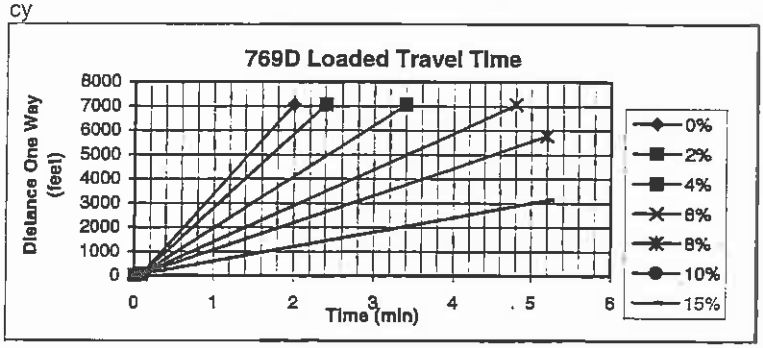
Characterization of Equipment Used (type, size, etc):

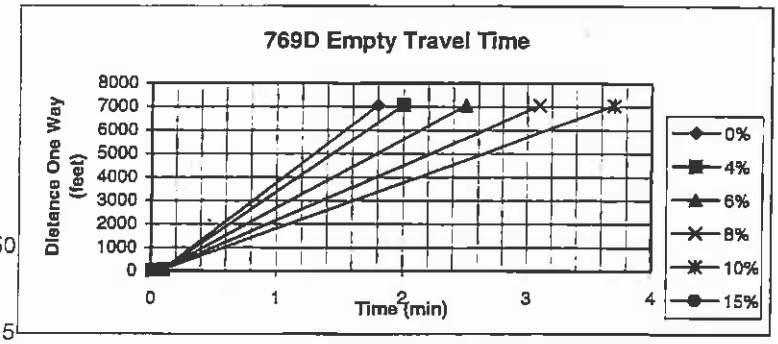
988F Loader Series II - bucket capacity	7.8	cy
769D Rear Dump Truck - truck capacity	30.9	cy

Loading and Haulage

Productivity Factors

Basic Loader Cycle (min)	0.58
Bulky Material (min)	0.03
Dumped Pile (min)	0.02
Common Loader/Truck Ownership (min)	-0.04
Work Hour Factor (50 min/hr)	0.83
Bucket Fill Factor	0.85
Truck Loaded Volume-4 passes (cy)	26.52
Haulage Distance (ft)	3,300
Effective Grade (%)	8





Production Times

Haul Time (min)	4.4
Dump Time (min)	1.1
Return Time (min)	2.2
Truck/Loader Match (trucks per loader)	4
Riprap Haulage Requirement (cy)	51,350

Placement

Riprap Placement Requirement (ft)	15,415
Placement Rate (ft/shift)	500
Shift (hours)	8

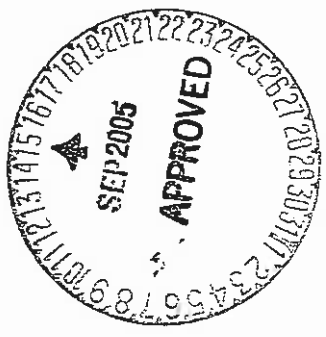


Table: 24-3-10 (cont.) Page 2
Mine Area: J-21Single Width
Project: Surface Stabilization
Task: Load, haul, and place riprap
Equipment: 988F Loader Series II
769D Rear Dump Truck

Load Summary

Loader Cycle Time = 0.58 (Basic Loader Cycle Time) + 0.03 (Bulky Material) + 0.02 (Dumped Pile) + -0.04 (Common Leader/Truck) = 0.59 min

Loader Volume per Cycle = 7.80 (Bucket Capacity) x 0.85 (Bucket Fill Factor) = 6.63 cy

Loader Cycle Time (per truck) = 0.59 (Loader Cycle Time) x 4 (Passes per Truck) = 2.36 min

Haul Summary

Truck Cycle Time = 2.36 (Load Time) + 4.4 (Haul Time) + 1.1 (Dump Time) + 2.20 (Return Time) = 10.06 min

Fleet Productivity = (4 (Loader/Truck Match) x 26.52 (Truck Loaded Volume)) / (4 (Loader/Truck Match) x 10.06 (Truck Cycle Time)) x 60 (min/hr) = 158 cy/hr

Required Fleet Hours = 51,350 (Riprap Haulage Requirement) / 158 (Fleet Productivity) x 1.371 (Work Schedule Factor) = **445 hrs**

Placement Summary

Required Loader Hours = (15,415 (Riprap Placement Requirement) / 500 (Placement Rate)) x 8 (Operating Shift) x 1.371 (Work Schedule Factor) = **338 hrs**

Notes: Riprap placement rate based on PWCC experience. Riprap placement length based on 20 percent of main channels and 50 percent of downdrain channels.

References: Table 24-2-6, Cat Handbook, Ed. 28.

Table:	24-3-11
Mine Area:	J-21Single Width
Project:	Topsoil/Suitable Material Replacement
Task:	Suitable Material Placement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place suitable material to graded spoil areas

Characterization of Equipment Used
637E P-P Scraper - capacity 31 cy

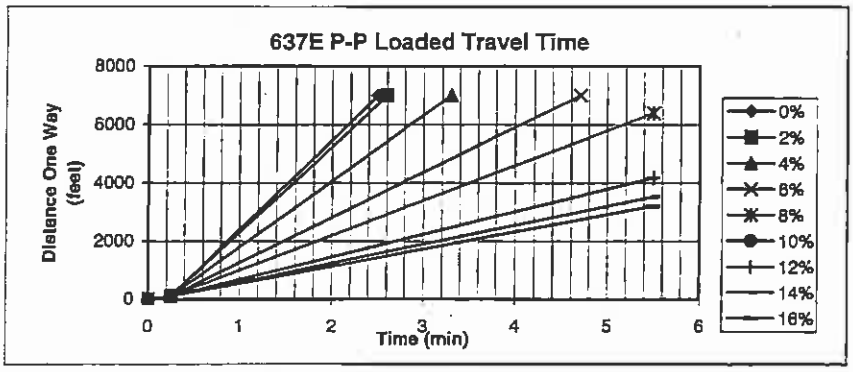
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

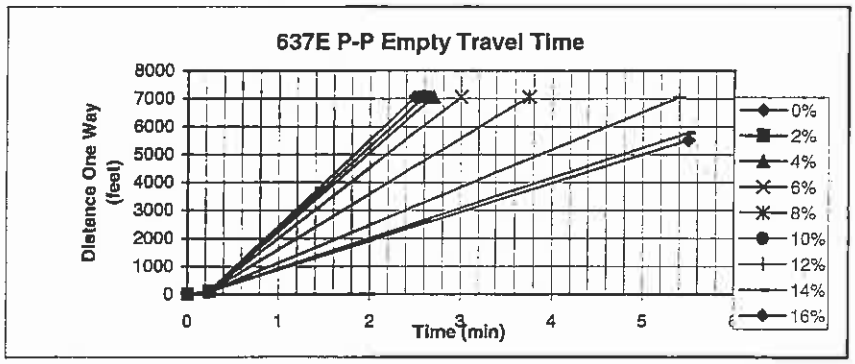
Loaded Distance (ft)	700
Loaded Grade (%)	-5
Loaded Effective Grade (%)	0
Empty Distance (ft)	700
Empty Grade (%)	5
Empty Effective Grade (%)	10

Production Times

Typical Load Time for 637E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved (cy)
1,385,673





Cycle Time	=	1.0 Load Time	+	0.4 Loaded Trip Time	+	0.6 Maneuver and Spread Time	+	0.6 Empty Trip Time	= 2.6 min
Cycles/Hour	=	60 min/hr	/	2.6 Cycle Time	=	23 cycles/hr			
Hourly Production	=	31 Adjusted Load (cy)	x	23.08 Cycles/ Hour	=	715 cy/hr			

Hours Required	=	1,385,673 Volume	/	715 Hourly Production	x	1.371 Work Schedule Factor	=	2,656 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-12
Mine Area:	J-21Single Width
Project:	Topsoil/Suitable Material Replacement
Task:	Topsoil Replacement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place topsoil onto graded spoil areas

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

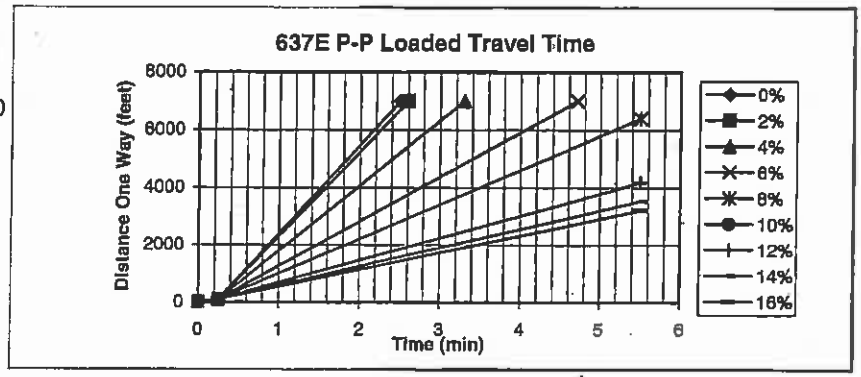
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

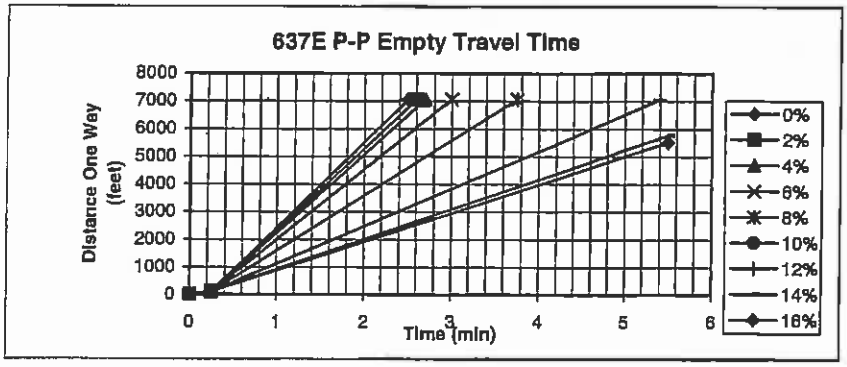
Loaded Distance (ft)	3,500
Loaded Grade (%)	2.5
Loaded Effective Grade (%)	7.5
Empty Distance (ft)	3,500
Empty Grade (%)	-2.5
Empty Effective Grade (%)	2.5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	2.6
Empty Travel Time (from chart)	1.4

Quantity of Material to be Moved (cy)
2,309,454





Cycle Time = 1.0 (Load Time) + 2.6 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.4 (Empty Trip Time) = **5.6** min

Cycles/Hour = 60 (min/hr) / 5.6 (Cycle Time) = **11** cycles/hr

Hourly Production = 31 (Adjusted Load (cy)) x 10.71 (Cycles/Hour) = **332** cy/hr

Hours Required = 2,309,454 (Volume) / 332 (Hourly Production) x 1.371 (Work Schedule Factor) = **9536** hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-13
Mine Area:	J-21Single Width
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
J-21 Mining Area (Category I)

Revegetation Area

Area (acre)	895
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 895 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$1,110,292**

Reseeding Costs = 895 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$363,238**

References: Table 24-1-3 and 24-2-7.

Table:	24-3-14
Mine Area:	J-21Single Width
Project:	Revegetation
Task:	Revegetation of Topsoil Stockpile
Equipment:	Miscellaneous

Revegetation Area Description
J-21 Mining Area (Category I) - Topsoil Stockpiles

Revegetation Area

Area (acre)	156.5
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 157 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$194,217**

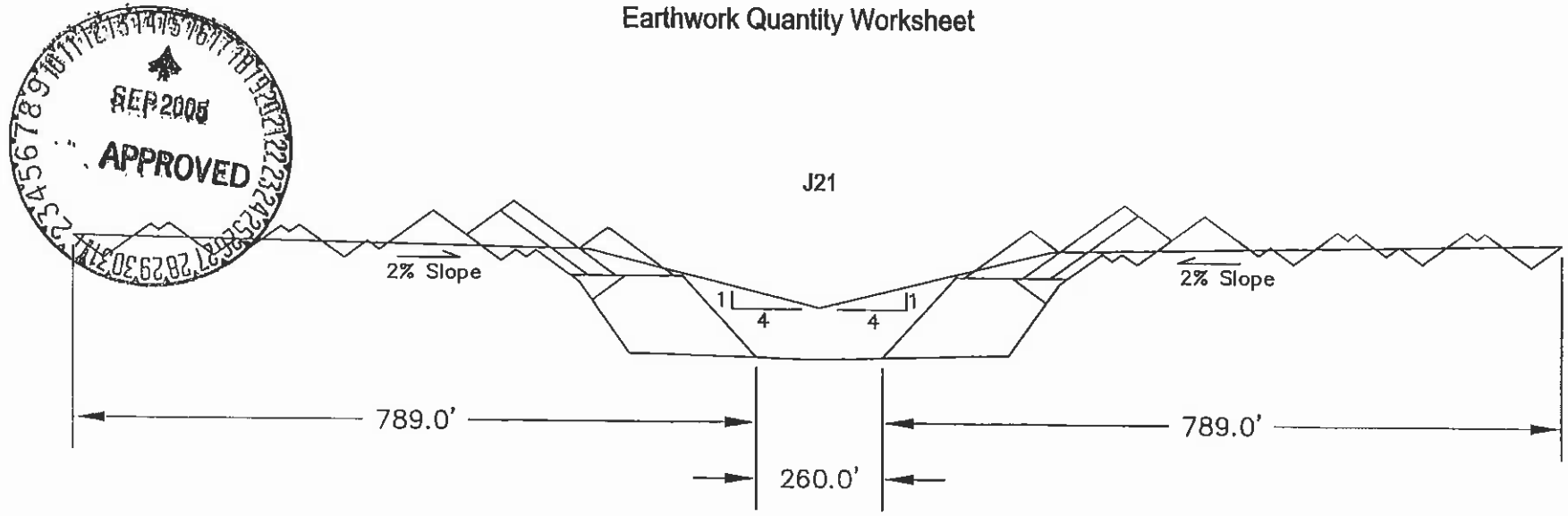
Reseeding Costs = 157 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$63,539**

References: Table 24-1-3 and 24-2-7.

MINE AREA: J21 - DOUBLE-WIDE PIT

Worksheet No. 24-3-1

Earthwork Quantity Worksheet



HIGHWALL REDUCTION

Area = 0

Pit Length = 8,300

Volume = 0

Swelled Volume = 0

SPOIL TO OPEN PIT

Spoil 1,2 = 4,943,110

SPOIL GRADING

Spoil 3,4 = 883,800

SCALE

100' 0 100' 200'

CONTOUR INTERVAL N/A

AutoCAD: J21FinalSection.dwg

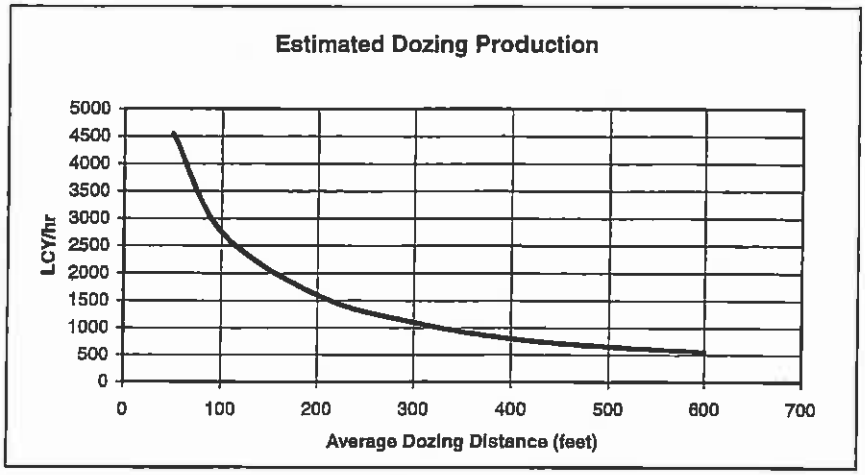
Table:	24-3-04
Mine Area:	J-21 Double Width
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze first two spoil ridges (first two spoils go into pit)

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	250
Hourly production (from chart)	1,250
Grade (in percent)	-25
Grade Correction	1.5
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
4,943,110

Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.5 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **1.11**

Net Hourly Production = 1,250 (Normal Hourly Production (see graph above)) x 1.11 (Productivity Adjustment Factor) = **1,386 cy/hr**

Hours Required = 4,943,110 (Volume to be Moved) / 1,386 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **4,891 Hours**

References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-05
Mine Area:	J-21 Double Width
Project:	Backfill Mine Pits
Task:	Doze Back Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze back two spoil ridges

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	210
Hourly production (from chart)	1,500
Grade (in percent)	-25
Grade Correction	1.5
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Cable controlled blade (.6)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

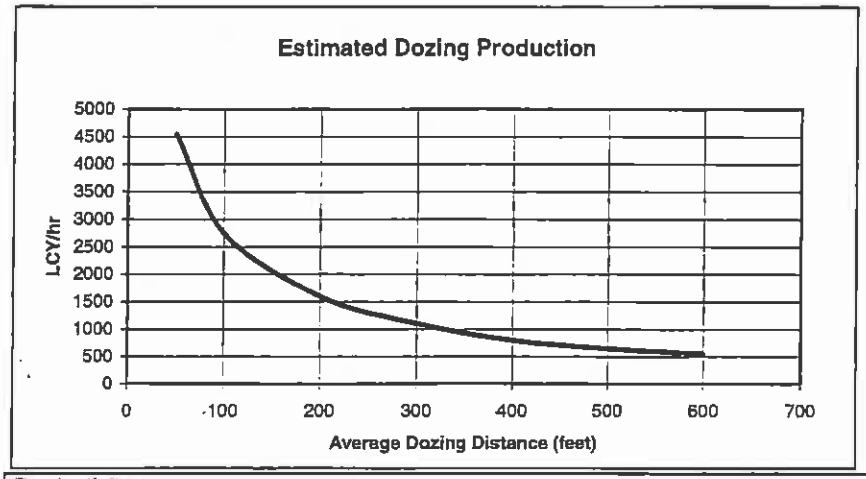
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes



Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.20 (Material Factor) x 1.5 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **1.11**

Net Hourly Production = 1,500 (Normal Hourly Production (see graph above)) x 1.11 (Operating Adjustment Factor) = **1,663 cy/hour**

Hours Required = 883,800 (Volume to be Moved) / 1,663 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **729 hours**

Quantity of Material to be Moved (cy)
883,800

References: Table 24-2-3, Cat Handbook, Ed. 28.

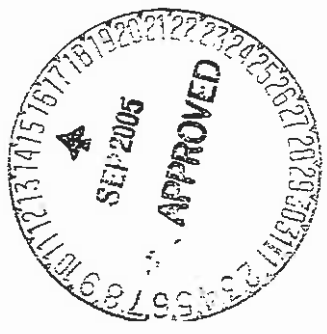


Table:	24-3-06
Mine Area:	J-21 Double Width
Project:	Backfill and Grade Ramps
Task:	Backfill/Grade Ramps
Equipment:	D11R Dozer

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

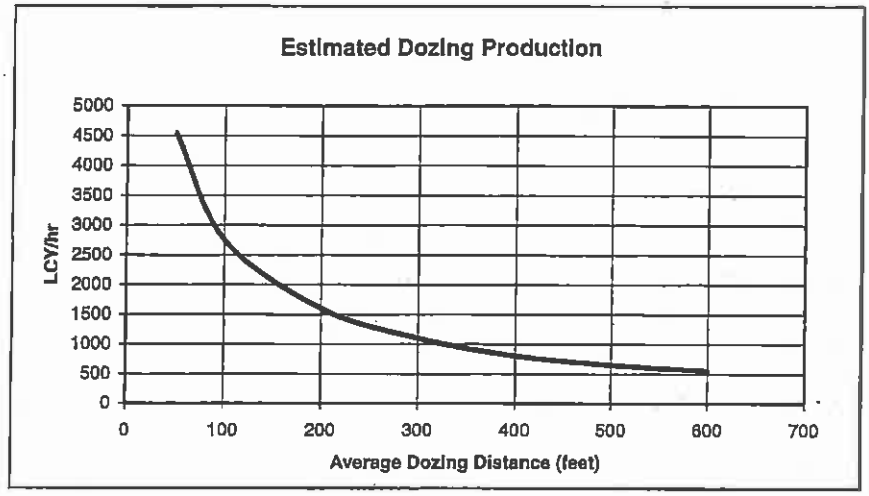
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)

832091 cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.00 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.74**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = **1,183 cy/hr**

Hours Required = 832,091 (Volume to be Moved) / 1,183 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **965 hours**

References: Table 24-2-4, Cat Handbook, Ed. 28

Table:	24-3-07
Mine Area:	J-21 Double Width
Project:	General Grading
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

0 acres

Hours Required	=	0 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 = Work Schedule Factor	0 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-5

Table:	24-3-08
Mine Area:	J-21 Double Width
Project:	Surface Stabilization
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement
52,000 lineal feet

Hours Required	=	52,000 / Terrace Requirement (ft)	1,060 x Production Rate (ft/hr)	1.371 = Work Schedule Factor	67 Hours

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-09
Mine Area:	J-21 Double Width
Project:	Surface Stabilization
Task:	Grade Drainages/Downdrains
Equipment:	D7R Dozer

Earthmoving Activity
Grade drainages and downdrains.

Characterization of Dozer Used (type, size. etc)
D7R, U-blade

Production Rate (lineal ft/hr) 800

Drainages/Downdrains Requirement
9,000 lineal feet

Hours Required	=	9,000 Drainages/Downdrain Requirement (ft)	/	800 Production Rate (ft/hr)	x	1.371 Work Schedule Factor	=	15 Hours

Note: Production rate based on average grading speed of 2 mph and 12 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-10 Page 1
Mine Area:	J-21 Double Width
Project:	Surface Stabilization
Task:	Load, haul, and place riprap
Equipment:	988F Loader Series II
	769D Rear Dump Truck

Earthmoving Activity

Load, haul,and place riprap in main channels and downdrains.

Characterization of Equipment Used (type, size, etc):

988F Loader Series II - bucket capacity	7.8	cy
769D Rear Dump Truck - truck capacity	30.9	cy

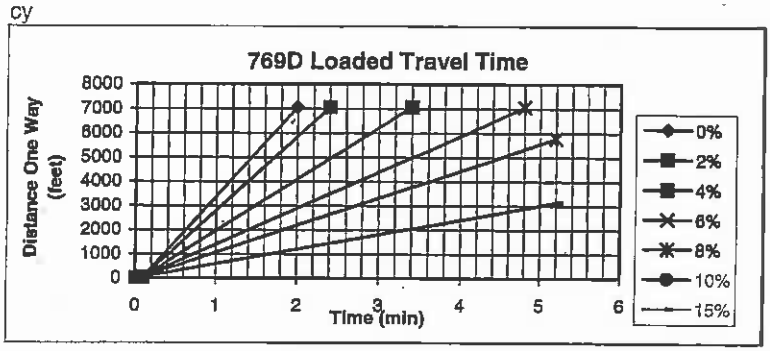
Loading and Haulage

Productivity Factors	
Basic Loader Cycle (min)	0.58
Bulky Material (min)	0.03
Dumped Pile (min)	0.02
Common Loader/Truck Ownership (min)	-0.04
Work Hour Factor (50 min/hr)	0.83
Bucket Fill Factor	0.85
Truck Loaded Volume-4 passes (cy)	26.52
Haulage Distance (ft)	2,500
Effective Grade (%)	5

Production Times	
Haul Time (min)	0.8
Dump Time (min)	1.1
Return Time (min)	0.7
Truck/Loader Match (trucks per loader)	2
Riprap Haulage Requirement (cy)	21,000

Placement

Riprap Placement Requirement (ft)	6,300
Placement Rate (ft/shift)	500
Shift (hours)	8



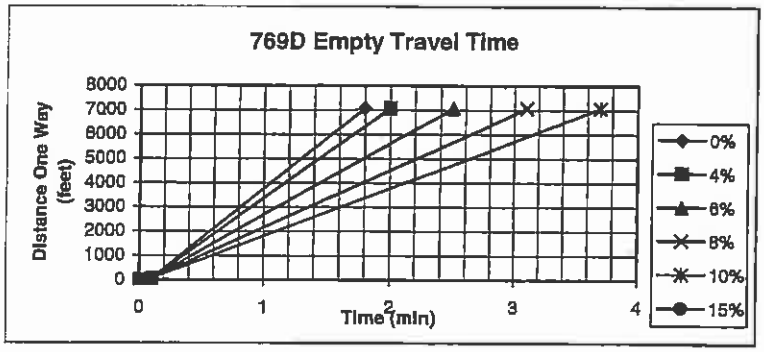


Table:	24-3-10 (cont.) Page 2
Mine Area:	J-21 Double Width
Project:	Surface Stabilization
Task:	Load, haul, and place riprap
Equipment:	988F Loader Series II
	769D Rear Dump Truck

Load Summary

Loader Cycle Time	= 0.58 Basic Loader Cycle Time	+	0.03 Bulky Material	+	0.02 Dumped Pile	+	-0.04 Common Leader/Truck	=	0.59 min
Loader Volume per Cycle	= 7.80 Bucket Capacity	x	0.85 Bucket Fill Factor	=	6.63 cy				
Loader Cycle Time (per truck)	= 0.59 Loader Cycle Time	x	4 Passes per Truck	=	2.36 min				

Haul Summary

Truck Cycle Time	= 2.36 Load Time	+	0.8 Haul Time	+	1.1 Dump Time	+	0.70 Return Time	=	4.96 min
Fleet Productivity	=(2 Loader/Truck Match	x	26.52 Truck Loaded Volume	)/(	2 Loader/Truck Match	x	4.96 Truck Cycle Time	)x	60 min/hr = 321 cy/hr
Required Fleet Hours	= 21,000 Riprap Haulage Requirement	/	321 Fleet Productivity	x	1.371 Work Schedule Factor	=	**90 hrs**		

Placement Summary

Required Loader Hours	=(6,300 Riprap Placement Requirement	/	500 Placement Rate	)x	8 Operating Shift	x	1.371 Work Schedule Factor	=	138 hrs

Notes: Riprap placement rate based on PWCC experience. Riprap placement length based on 20 percent of main channels and 50 percent of downdrain channels.

References: Table 24-2-6, Cat Handbook, Ed. 28.

Table:	24-3-11
Mine Area:	J-21 Double Width
Project:	Topsoil/Suitable Material Replacement
Task:	Suitable Material Placement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place suitable material to graded spoil areas

Characterization of Equipment Used

637E P-P Scraper - capacity	31	cy

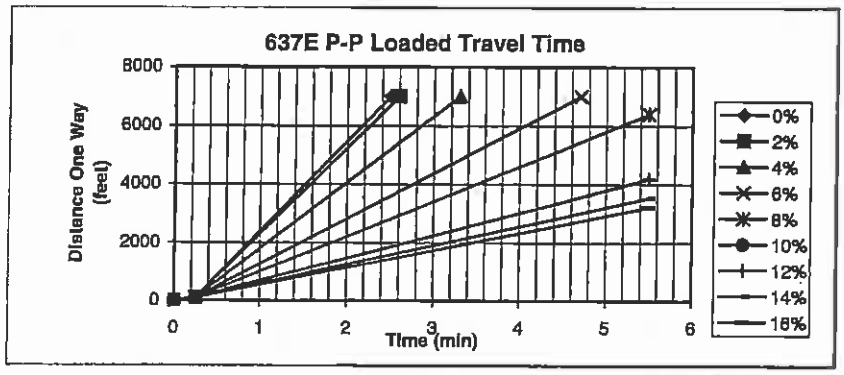
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

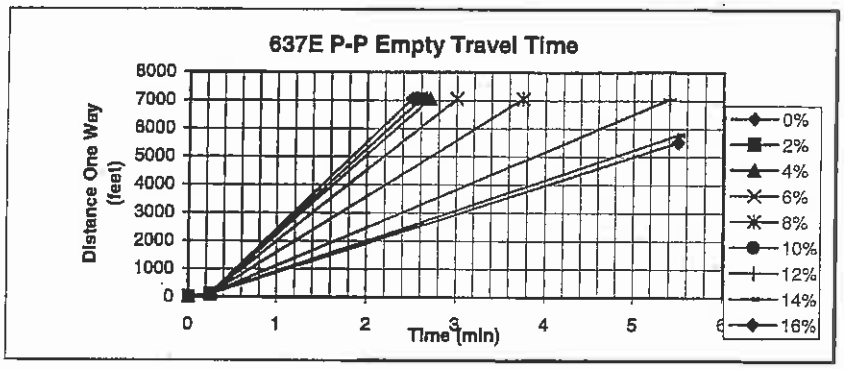
Loaded Distance (ft)	700
Loaded Grade (%)	-5
Loaded Effective Grade (%)	0
Empty Distance (ft)	700
Empty Grade (%)	5
Empty Effective Grade (%)	10

Production Times

Typical Load Time for 637E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved (cy)
1,337,116





Cycle Time =	1.0 Load Time	+	0.4 Loaded Trip Time	+	0.6 Maneuver and Spread Time	+	0.6 Empty Trip Time	= 2.6 min

Cycles/Hour =	60 min/hr	/	2.6 Cycle Time	= 23	cycles/hr
Hourly Production =	31 Adjusted Load (cy)	x	23.08 Cycles/ Hour	= 715	cy/hr

Hours Required =	1,337,116 Volume	/	715 Hourly Production	x	1.371 Work Schedule Factor	= 2,563	hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-12
Mine Area:	J-21 Double Width
Project:	Topsoil/Suitable Material Replacement
Task:	Topsoil Replacement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place topsoil onto graded spoil areas

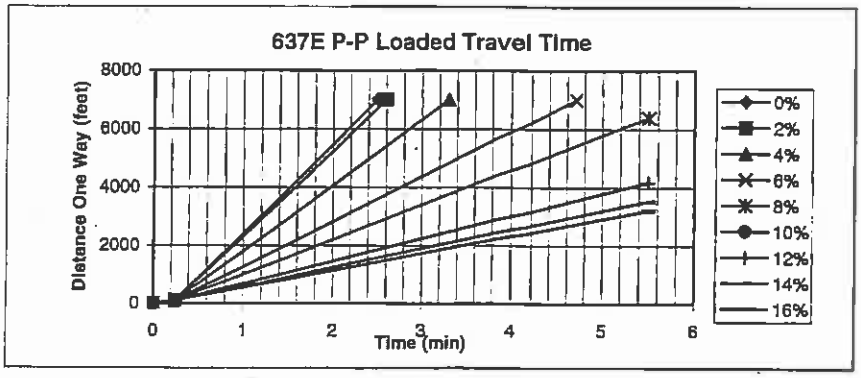
Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

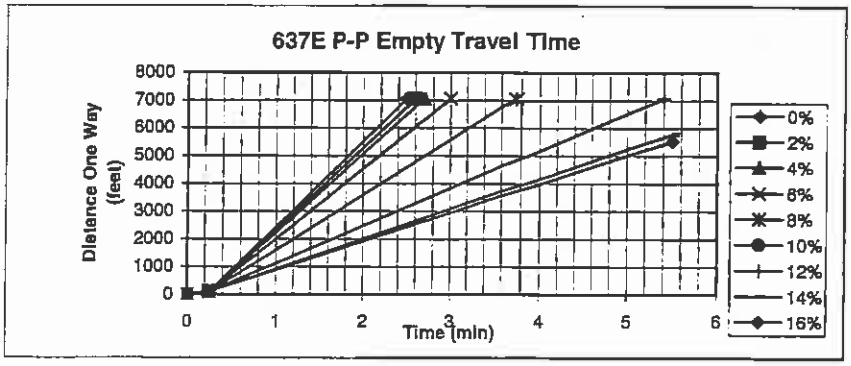
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

Loaded Distance (ft)	1,200
Loaded Grade (%)	2.5
Loaded Effective Grade (%)	7.5
Empty Distance (ft)	1,200
Empty Grade (%)	-2.5
Empty Effective Grade (%)	2.5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	1.1
Empty Travel Time (from chart)	0.6





Quantity of Material to be Moved (cy)
2,228,526

Cycle Time = 1.0 (Load Time) + 1.1 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.6 (Empty Trip Time) = 3.3 min

Cycles/Hour = 60 min/hr / 3.3 Cycle Time = 18 cycles/hr

Hourly Production = 31 Adjusted Load (cy) x 18.18 Cycles/Hour = 564 cy/hr

Hours Required = 2,228,526 Volume / 564 Hourly Production x 1.371 Work Schedule Factor = 5422 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-13
Mine Area:	J-21 Double Width
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-11 Expansion Mining Area (Category I)

Revegetation Area

Area (acre)	863
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 863 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$1,071,385**

Reseeding Costs = 863 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$350,509**

References: Table 24-1-3 and 24-2-7.

Table:	24-3-14
Mine Area:	J-21 Double Width
Project:	Revegetation
Task:	Revegetation of Topsoil Stockpile
Equipment:	Miscellaneous

Revegetation Area Description
N-11 Expansion Mining Area (Category I) - Topsoil Stockpiles

Revegetation Area

Area (acre)	41
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 41 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$50,757**

Reseeding Costs = 41 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$16,605**

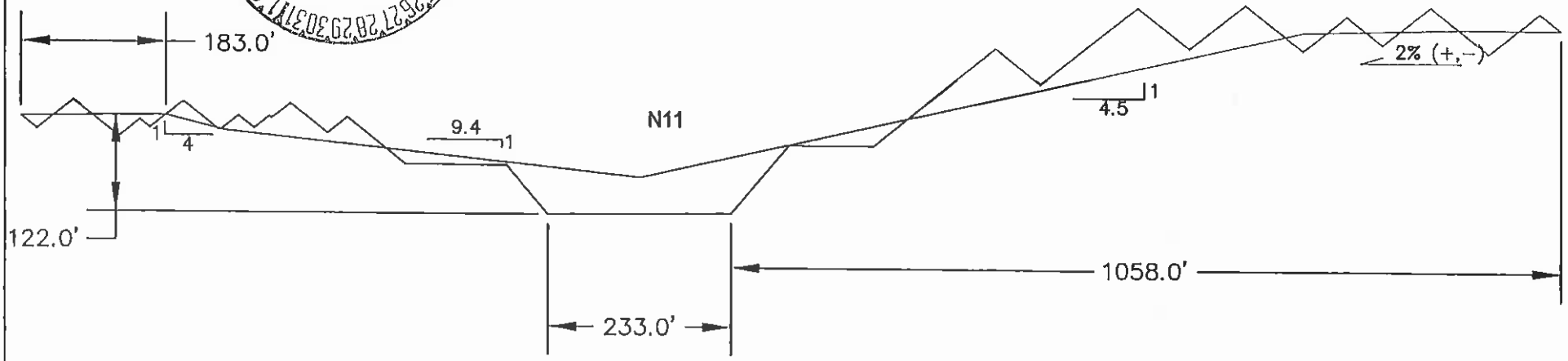
References: Table 24-1-3 and 24-2-7.

MINE AREA: N11

Worksheet No. 24-3-1

Earthwork Quantity Worksheet

SEP 2005
APPROVED



HIGHWALL REDUCTION

Area = NA
Pit Length = 8,450
Volume = NA
Swelled Volume = NA

SPOIL TO OPEN PIT

Spoil 1,2 = 1,258,110 + 3,774,330 = 5,032,440

SPOIL GRADING

Spoil 3,4 = 899,770

SCALE
100' 0 100' 200'
CONTOUR INTERVAL N/A

AutoCAD: N11FinalSection.dwg

Table:	24-3-03
Mine Area:	N-11
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils (Highwall Side)
Equipment:	D11R Dozer

Earthmoving Activity:
Doze blasted highwall reduction material into pit

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use:

Average dozing distance (feet)	340
Hourly production (from chart)	1,000
Grade (in percent)	-10
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

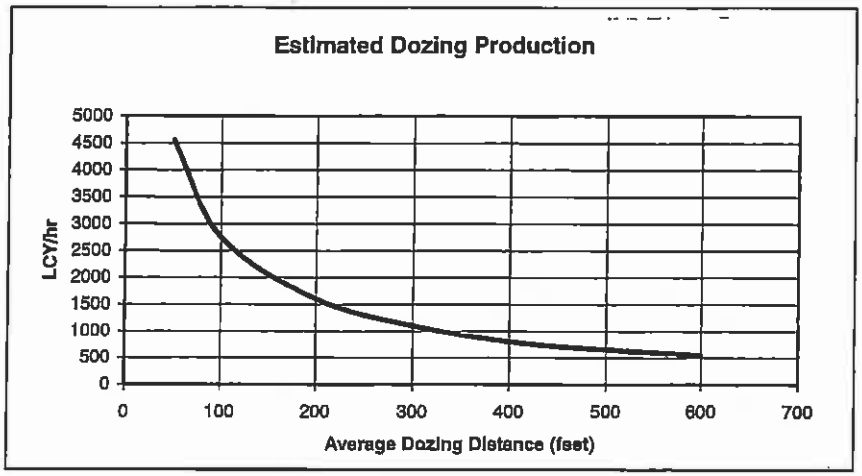
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
1,258,110



Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.20 (Material Factor) x 1.2 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.0 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.89**

Net Hourly Production = 1,000 (Normal Hourly Production (see graph above)) x 0.89 (Productivity Adjustment Factor) = **887 cy/hr**

Hours Required = 1,258,110 (Volume to be Moved) / 887 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **1,945 Hours**

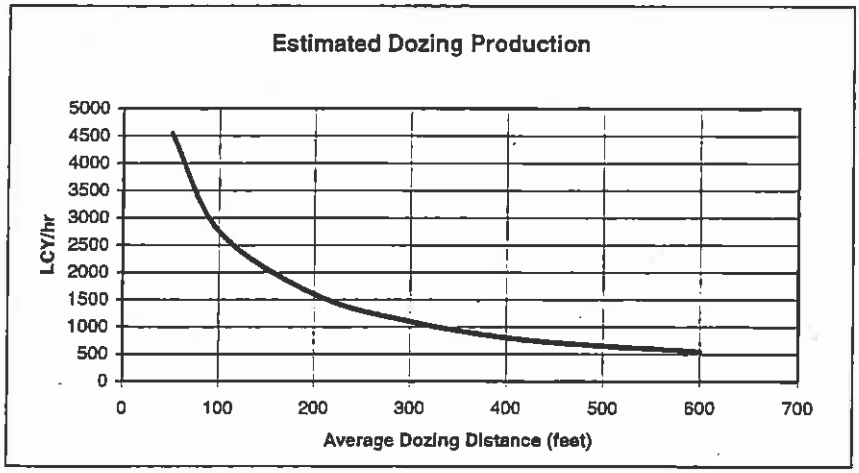
References: Tables 24-2-3 and 24-3-2, and Cat Handbook, Ed. 28

Table:	24-3-04
Mine Area:	N-11
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze first two spoil ridges (first two spoils go into pit)

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	450
Hourly production (from chart)	750
Grade (in percent)	-22
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustment Factors

Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
3,774,330

Productivity Adjustment Factor = Operating Factor (0.75) x Material Factor (1.20) x Grade Factor (1.4) x Density Correction (0.82) x Production Method (1.00) x Visibility (1.00) x Elevation (1.00) x Direct Drive Trans (1.00) = **1.04**

Net Hourly Production = Normal Hourly Production (see graph above) (750) x Productivity Adjustment Factor (1.04) = **776 cy/hr**

Hours Required = Volume to be Moved (3,774,330) / Net Hourly Production (776) x Work Schedule Factor (1.371) = **6,668 Hours**

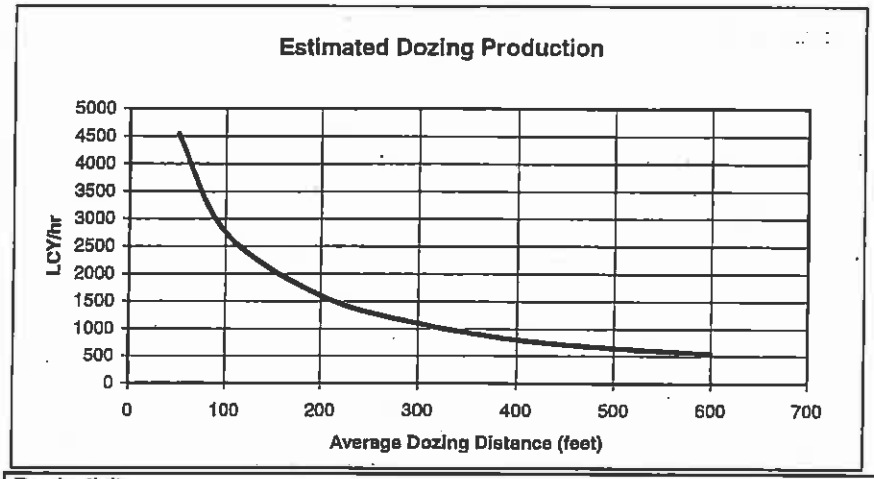
References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-05
Mine Area:	N-11
Project:	Backfill Mine Pits
Task:	Doze Back Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze back two spoil ridges

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	100
Hourly production (from chart)	2,800
Grade (in percent)	-10
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82
Productivity Adjustment Factors	
Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Cable controlled blade (.6)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes



Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.20 (Material Factor) x 1.2 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.89**

Net Hourly Production = 2,800 (Normal Hourly Production (see graph above)) x 0.89 (Operating Adjustment Factor) = **2,484 cy/hour**

Hours Required = 899,770 (Volume to be Moved) / 2,484 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **497 hours**

Quantity of Material to be Moved (cy)
899,770

References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-06
Mine Area:	N-11
Project:	Backfill and Grade Ramps
Task:	Backfill/Grade Ramps
Equipment:	D11R Dozer

Characterization of Dozer Used (type, size. etc):

D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

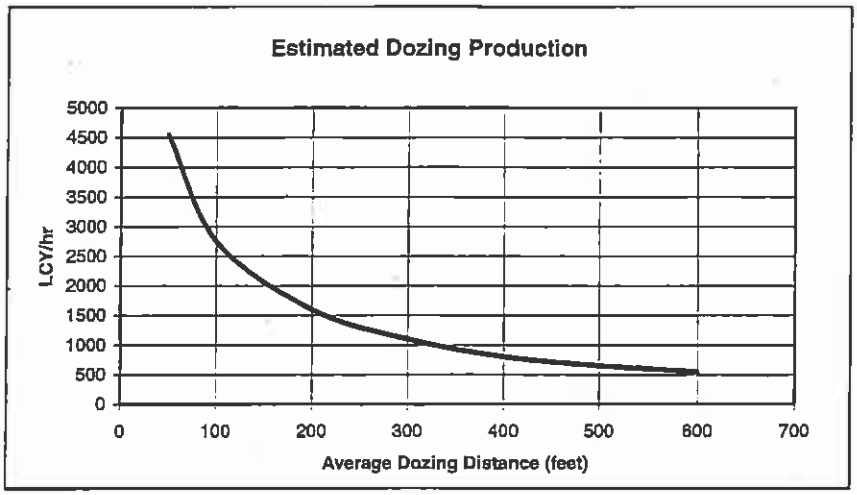
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)

832091 cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.00 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.74**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = **1,183 cy/hr**

Hours Required = 832,091 (Volume to be Moved) / 1,183 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **965 hours**

References: Table 24-2-4, Cat Handbook, Ed. 28

Table:	24-3-07
Mine Area:	N-11
Project:	General Grading
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

648 acres

Hours Required	=	648 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	=	7,109 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-5

Table:	24-3-08
Mine Area:	N-11
Project:	Surface Stabilization
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement
129,920 lineal feet

Hours Required	=	129,920 / Terrace Requirement (ft)	1,060 x Production Rate (ft/hr)	1.371 = Work Schedule Factor	168 Hours

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-09
Mine Area:	N-11
Project:	Surface Stabilization
Task:	Grade Drainages/Downdrains
Equipment:	D7R Dozer

Earthmoving Activity
Grade drainages and downdrains.

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 800

Drainages/Downdrains Requirement
11,300 lineal feet

Hours Required	=	11,300 Drainages/Downdrain Requirement (ft)	/	800 Production Rate (ft/hr)	x	1.371 Work Schedule Factor	=	19 Hours

Note: Production rate based on average grading speed of 2 mph and 12 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-10 Page 1
Mine Area:	N-11
Project:	Surface Stabillzation
Task:	Load, haul, and place riprap
Equipment:	988F Loader Series II
	769D Rear Dump Truck

Earthmoving Activity

Load, haul,and place riprap in main channels and downdrains.

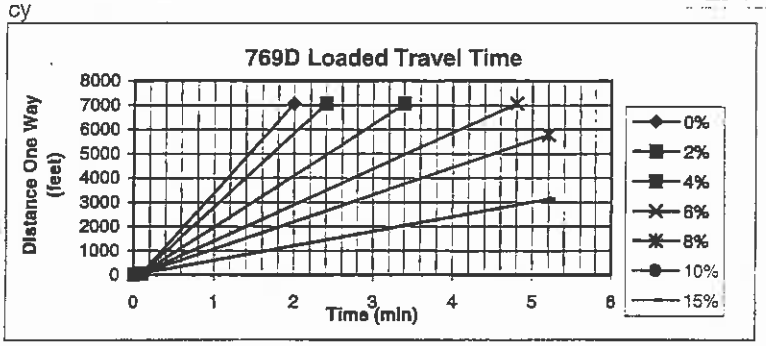
Characterization of Equipment Used (type, size. etc):

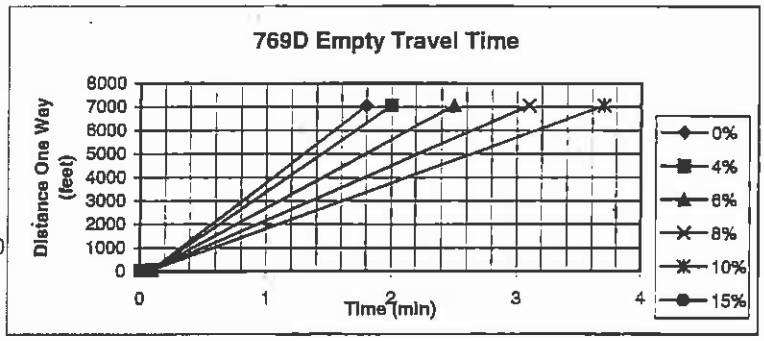
988F Loader Series II - bucket capacity	7.8	cy
769D Rear Dump Truck - truck capacity	30.9	cy

Loading and Haulage

Productivity Factors

Basic Loader Cycle (min)	0.58
Bulky Material (min)	0.03
Dumped Pile (min)	0.02
Common Loader/Truck Ownership (min)	-0.04
Work Hour Factor (50 min/hr)	0.83
Bucket Fill Factor	0.85
Truck Loaded Volume-4 passes (cy)	26.52
Haulage Distance (ft)	2,500
Effective Grade (%)	2





Production Times

Haul Time (min)	0.8
Dump Time (min)	1.1
Return Time (min)	0.7
Truck/Loader Match (trucks per loader)	2
Riprap Haulage Requirement (cy)	24,500

Placement

Riprap Placement Requirement (ft)	7,340
Placement Rate (ft/shift)	500
Shift (hours)	8

Table: 24-3-10 (cont.) Page 2
Mine Area: N-11
Project: Surface Stabilization
Task: Load, haul, and place riprap
Equipment: 988F Loader Series II
769D Rear Dump Truck

Load Summary

Loader Cycle Time = 0.58 (Basic Loader Cycle Time) + 0.03 (Bulky Material) + 0.02 (Dumped Pile) + -0.04 (Common Leader/Truck) = 0.59 min

Loader Volume per Cycle = 7.80 (Bucket Capacity) x 0.85 (Bucket Fill Factor) = 6.63 cy

Loader Cycle Time (per truck) = 0.59 (Loader Cycle Time) x 4 (Passes per Truck) = 2.36 min

Haul Summary

Truck Cycle Time = 2.36 (Load Time) + 0.8 (Haul Time) + 1.1 (Dump Time) + 0.70 (Return Time) = 4.96 min

Fleet Productivity = (2 (Loader/Truck Match) x 26.52 (Truck Loaded Volume))/(2 (Loader/Truck Match) x 4.96 (Truck Cycle Time))x 60 (min/hr) = 321 cy/hr

Required Fleet Hours = 24,500 (Riprap Haulage Requirement) / 321 (Fleet Productivity) x 1.371 (Work Schedule Factor) = 105 hrs

Placement Summary

Required Loader Hours = (7,340 (Riprap Placement Requirement) / 500 (Placement Rate))x 8 (Operating Shift) x 1.371 (Work Schedule Factor) = 161 hrs

Notes: Riprap placement rate based on PWCC experience. Riprap placement length based on 20 percent of main channels and 50 percent of downdrain channels.

References: Table 24-2-6, Cat Handbook, Ed. 28.

Table:	24-3-11
Mine Area:	N-11
Project:	Topsoil/Suitable Material Replacement
Task:	Suitable Material Placement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place suitable material to graded spoil areas

Characterization of Equipment Used
637E P-P Scraper - capacity 31 cy

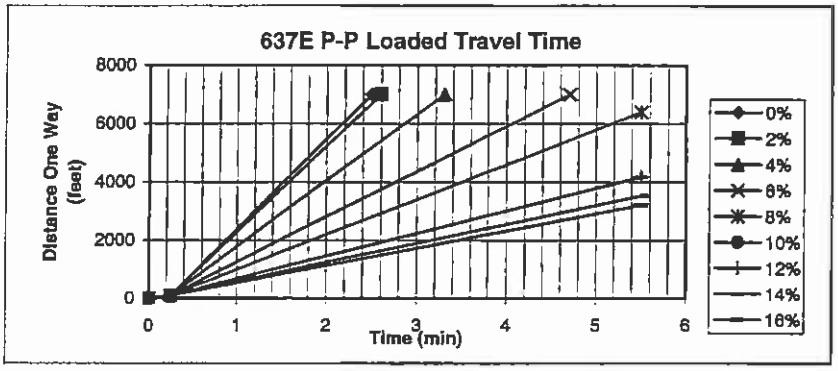
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

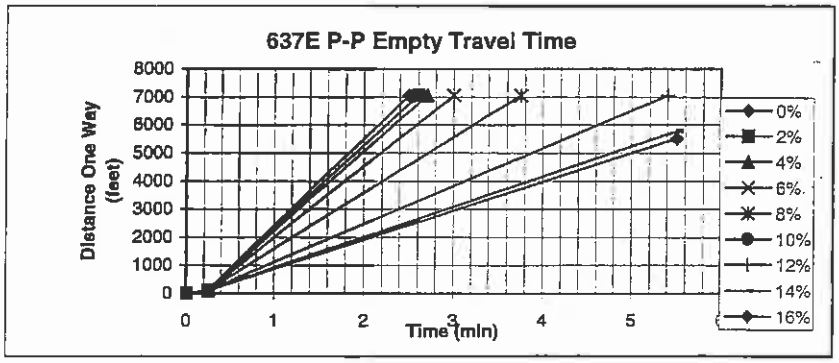
Loaded Distance (ft)	700
Loaded Grade (%)	-5
Loaded Effective Grade (%)	0
Empty Distance (ft)	700
Empty Grade (%)	5
Empty Effective Grade (%)	10

Production Times

Typical Load Time for 637E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved (cy)
1,337,116





Cycle Time =	1.0 Load Time	+	0.4 Loaded Trip Time	+	0.6 Maneuver and Spread Time	+	0.6 Empty Trip Time	=	2.6 min

Cycles/Hour =	60 min/hr	/	2.6 Cycle Time	=	23 cycles/hr

Hourly Production =	31 Adjusted Load (cy)	x	23.08 Cycles/ Hour	=	715 cy/hr

Hours Required =	1,337,116 Volume	/	715 Hourly Production	x	1.371 Work Schedule Factor	=	2,563 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-12
Mine Area:	N-11
Project:	Topsoil/Suitable Material Replacement
Task:	Topsoil Replacement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place topsoil onto graded spoil areas

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

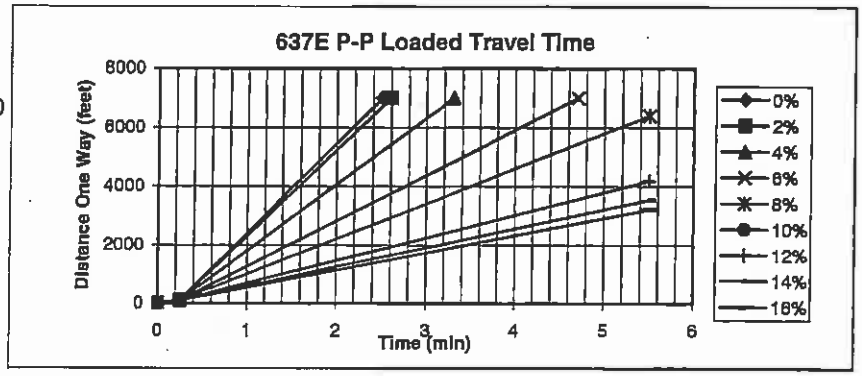
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

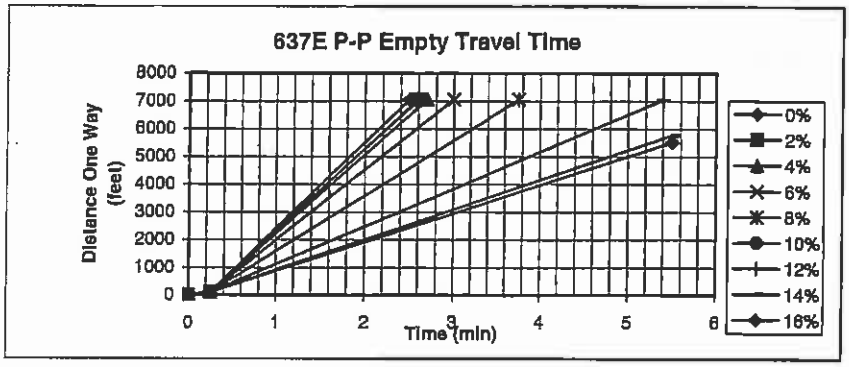
Loaded Distance (ft)	3,500
Loaded Grade (%)	2.5
Loaded Effective Grade (%)	7.5
Empty Distance (ft)	3,500
Empty Grade (%)	-2.5
Empty Effective Grade (%)	2.5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	1.1
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved (cy)
2,228,526





Cycle Time = 1.0 (Load Time) + 1.1 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.6 (Empty Trip Time) = 3.3 min

Cycles/Hour = 60 (min/hr) / 3.3 (Cycle Time) = 18 cycles/hr

Hourly Production = 31 (Adjusted Load (cy)) x 18.18 (Cycles/Hour) = 564 cy/hr

Hours Required = 2,228,526 (Volume) / 564 (Hourly Production) x 1.371 (Work Schedule Factor) = 5422 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-13
Mine Area:	N-11
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-11 Mining Area (Category I)

Revegetation Area

Area (acre)	863
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 863 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$1,071,385**

Reseeding Costs = 863 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$350,509**

References: Table 24-1-3 and 24-2-7.

Table:	24-3-14
Mine Area:	N-11
Project:	Revegetation
Task:	Revegetation of Topsoil Stockpile
Equipment:	Miscellaneous

Revegetation Area Description
N-11 Mining Area (Category I) - Topsoil Stockpiles

Revegetation Area

Area (acre)	39.7
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 40 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$49,268**

Reseeding Costs = 40 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$16,118**

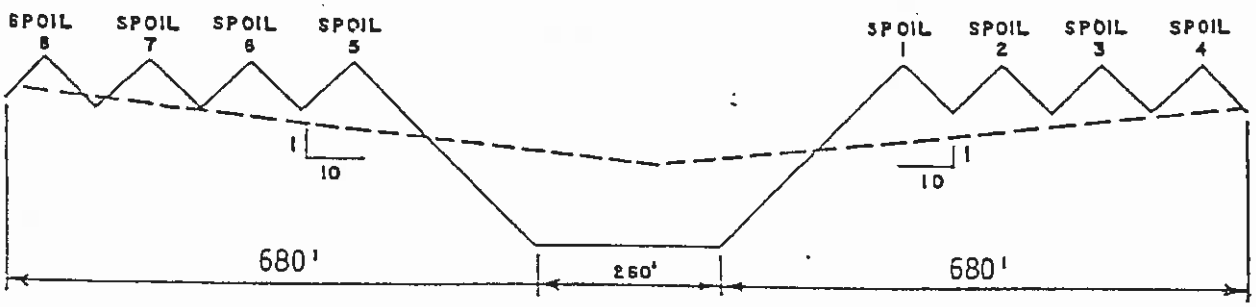
References: Table 24-1-3 and 24-2-7.

Mine Area N-14
Project Open Pit Backfilling

Date Open Pit Backfilling

WORKSHEET NO. N-14-1

EARTHWORK QUANTITY WORKSHEET



Open Pit Volume

Area = 44,800 sq.ft. (digitized area)

Pit Length = 3,400 ft. (actual) x 2 = 6,800' (double wide pit)
Pit Volume Needed = 5,641,500 cy.yd.

Spoil to Open Pit

Spoils 1, 2, 3, 5, 6, 7 = 44,800 sq. ft. x 3,400 ft. = 5,641,500 cu. yd.

Spoil Grading

Spoils 4, 8 = 1,900 sq. ft. x 3,400 ft. = 239,300 cu. yd.

Revised 03/23/95

Table:	24-3-03
Mine Area:	N-14
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils (Highwall Side)
Equipment:	D11R Dozer

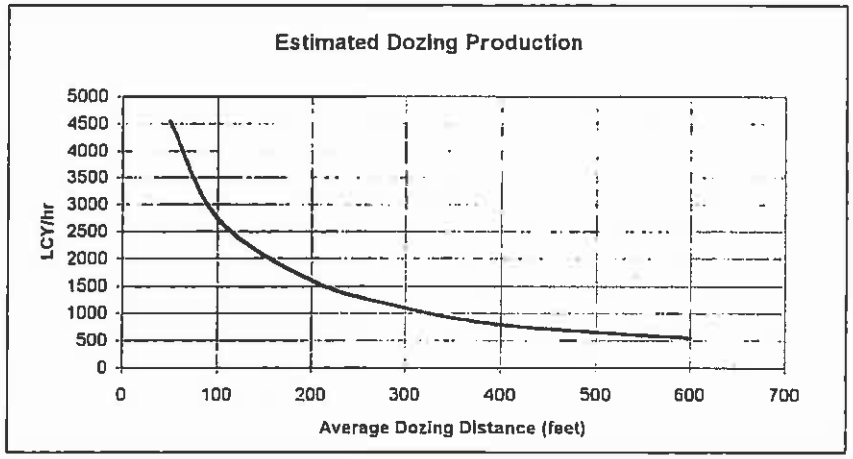
Earthmoving Activity:
Doze blasted highwall reduction material into pit

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes



Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.00 (Material Factor) x 1.4 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.0 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.86**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.86 (Productivity Adjustment Factor) = **1,380 cy/hr**

Hours Required = 2,820,740 (Volume to be Moved) / 1,380 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **2,803 Hours**

Quantity of Material to be Moved (cy)
2,820,740

References: Tables 24-2-3 and 24-3-2, and Cat Handbook, Ed 28

Table:	24-3-04
Mine Area:	N-14
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils (Spoil Side)
Equipment:	D11R Dozer

Earthmoving Activity:
Doze first two spoil ridges (first two spoils go into pit)

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

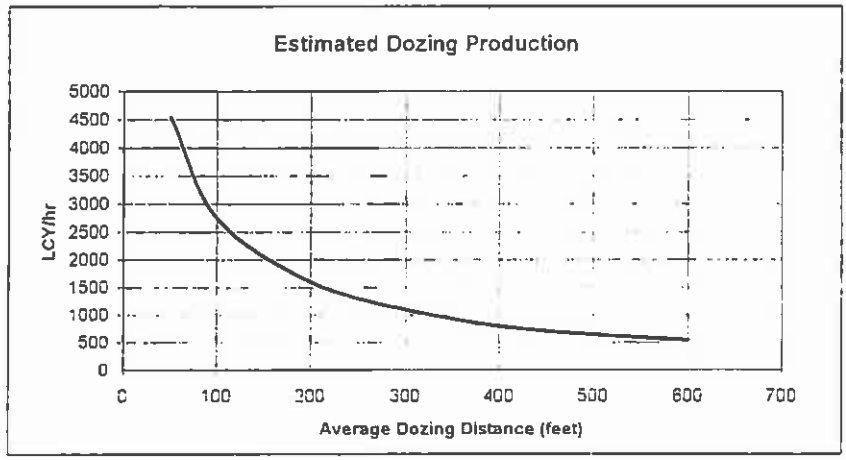
Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility
(i.e., dust, rain, snow, fog, or darkness) (0.8) no

Elevation Factor
<7,500 feet (1.0) yes

Quantity of Material to be Moved (cy)
2,820,740



Productivity Adjustment Factor = 0.75 Operating Factor x 1.20 Material Factor x 1.4 Grade Factor x 0.82 Density Correction

x 1.00 Production Method x 1.00 Visibility x 1.00 Elevation x 1.00 Direct Drive Trans = **1.04**

Net Hourly Production = 1,600 Normal Hourly Production (see graph above) x 1.04 Productivity Adjustment Factor = **1,656 cy/hr**

Hours Required = 2,820,740 Volume to be Moved / 1,656 Net Hourly Production x 1.371 Work Schedule Factor = **2,336 Hours**

References: Table 24-2-3, Cat Handbook, Ed. 28.

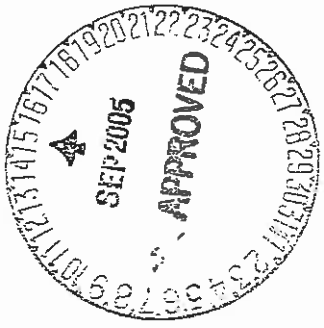
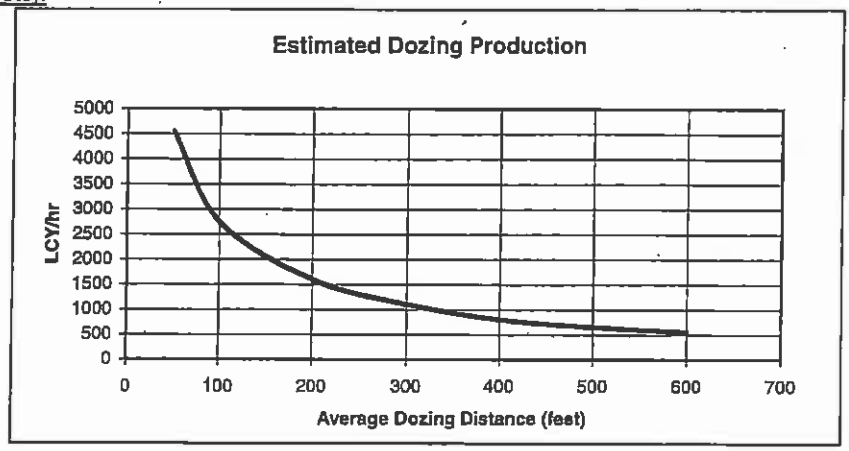


Table:	24-3-05
Mine Area:	N-14
Project:	Backfill Mine Pits
Task:	Doze Back Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze back two spoil ridges

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	100
Hourly production (from chart)	2,800
Grade (in percent)	-10
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustment Factors	
Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Cable controlled blade (.6)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes

Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.20 (Material Factor) x 1.2 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.89**

Net Hourly Production = 2,800 (Normal Hourly Production (see graph above)) x 0.89 (Operating Adjustment Factor) = **2,484 cy/hour**

Hours Required = 239,260 (Volume to be Moved) / 2,484 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **132 hours**

Quantity of Material to be Moved (cy)
239,260

References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-06
Mine Area:	N-14
Project:	Backfill and Grade Ramps
Task:	Backfill/Grade Ramps
Equipment:	D11R Dozer

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

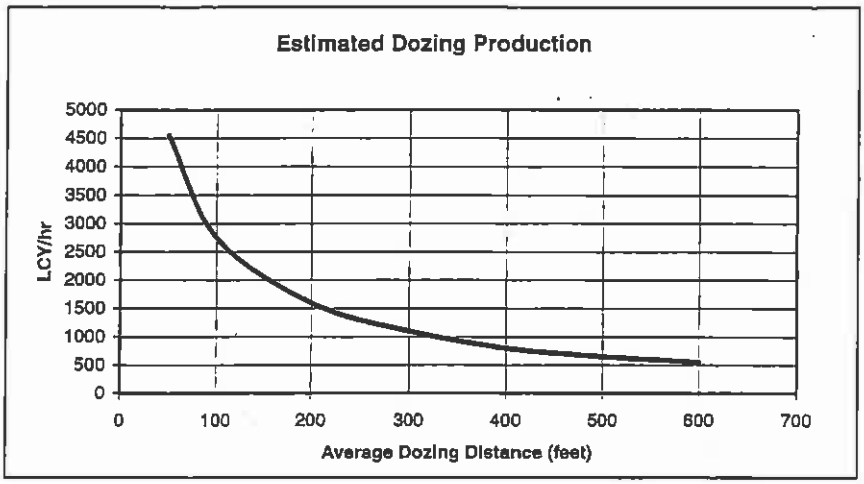
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
3535600



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.00 (Grade Correction) x 0.82 (Density Correction)
x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 0.74

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = **1,183 cy/hr**

Hours Required = 3,535,600 (Volume to be Moved) / 1,183 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 4,099 hours

References: Table 24-2-4, Cat Handbook, Ed. 28

Table:	24-3-07
Mine Area:	N-14
Project:	General Grading
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

42 acres

Hours Required	=	42 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	=	461 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-5

Table:	24-3-08
Mine Area:	N-14
Project:	Surface Stabilization
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement
37,410 lineal feet

Hours Required	=	37,410 / Terrace Requirement (ft)	1,060 x Production Rate (ft/hr)	1.371 = Work Schedule Factor	48 Hours

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-09
Mine Area:	N-14
Project:	Surface Stabilization
Task:	Grade Drainages/Downdrains
Equipment:	D7R Dozer

Earthmoving Activity
Grade drainages and downdrains.

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 800

Drainages/Downdrains Requirement
6,780 lineal feet

Hours Required	=	6,780 / Drainages/Downdrain Requirement (ft)	800 Production Rate (ft/hr)	x	1.371 Work Schedule Factor	=	12 Hours

Note: Production rate based on average grading speed of 2 mph and 12 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-10	Page 1
Mine Area:	N-14	
Project:	Surface Stabilization	
Task:	Load, haul, and place riprap	
Equipment:	988F Loader Series II	
	769D Rear Dump Truck	

Earthmoving Activity

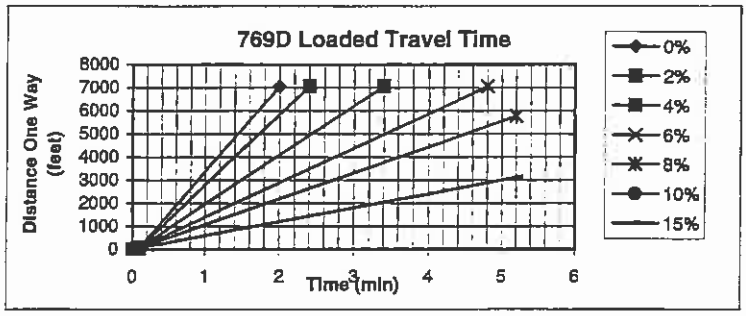
Load, haul,and place riprap in main channels and downdrains.

Characterization of Equipment Used (type, size, etc):

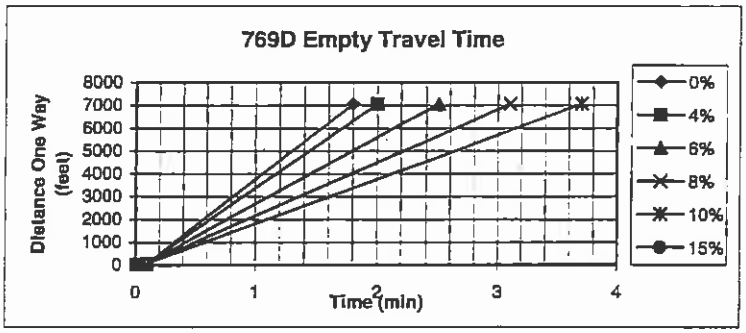
988F Loader Series II - bucket capacity	7.8	cy
769D Rear Dump Truck - truck capacity	30.9	cy

Loading and Haulage

Productivity Factors	
Basic Loader Cycle (min)	0.58
Bulky Material (min)	0.03
Dumped Pile (min)	0.02
Common Loader/Truck Ownership (min)	-0.04
Work Hour Factor (50 min/hr)	0.83
Bucket Fill Factor	0.85
Truck Loaded Volume-4 passes (cy)	26.52
Haulage Distance (ft)	2,500
Effective Grade (%)	2



Production Times	
Haul Time (min)	1.8
Dump Time (min)	1.1
Return Time (min)	1.0
Truck/Loader Match (trucks per loader)	2
Riprap Haulage Requirement (cy)	4,550



Placement

Riprap Placement Requirement (ft)	7,340
Placement Rate (ft/shift)	500
Shift (hours)	8

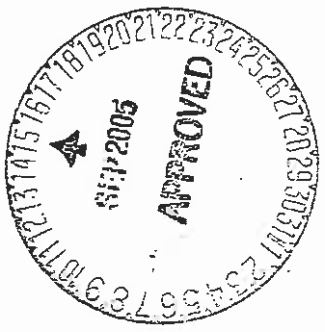


Table: 24-3-10 (cont.) Page 2
Mine Area: N-14
Project: Surface Stabilization
Task: Load, haul, and place riprap
Equipment: 988F Loader Series II
769D Rear Dump Truck

Load Summary

Loader Cycle Time = 0.58 (Basic Loader Cycle Time) + 0.03 (Bulky Material) + 0.02 (Dumped Pile) + -0.04 (Common Leader/Truck) = 0.59 min

Loader Volume per Cycle = 7.80 (Bucket Capacity) x 0.85 (Bucket Fill Factor) = 6.63 cy

Loader Cycle Time (per truck) = 0.59 (Loader Cycle Time) x 4 (Passes per Truck) = 2.36 min

Haul Summary

Truck Cycle Time = 2.36 (Load Time) + 1.8 (Haul Time) + 1.1 (Dump Time) + 1.00 (Return Time) = 6.26 min

Fleet Productivity = (2 (Loader/Truck Match) x 26.52 (Truck Loaded Volume))/(2 (Loader/Truck Match) x 6.26 (Truck Cycle Time))x 60 (min/hr) = 254 cy/hr

Required Fleet Hours = 4,550 (Riprap Haulage Requirement) / 254 (Fleet Productivity) x 1.371 (Work Schedule Factor) = 25 hrs

Placement Summary

Required Loader Hours = (7,340 (Riprap Placement Requirement) / 500 (Placement Rate))x 8 (Operating Shift) x 1.371 (Work Schedule Factor) = 161 hrs

Notes: Riprap placement rate based on PWCC experience. Riprap placement length based on 20 percent of main channels and 50 percent of downdrain channels.

References: Table 24-2-6, Cat Handbook, Ed. 28.

Table:	24-3-11
Mine Area:	N-14
Project:	Topsoil/Suitable Material Replacement
Task:	Suitable Material Placement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place suitable material to graded spoil areas

Characterization of Equipment Used
637E P-P Scraper - capacity 31 cy

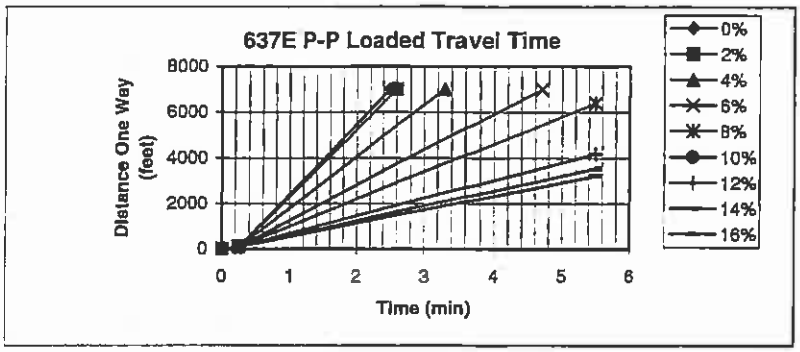
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

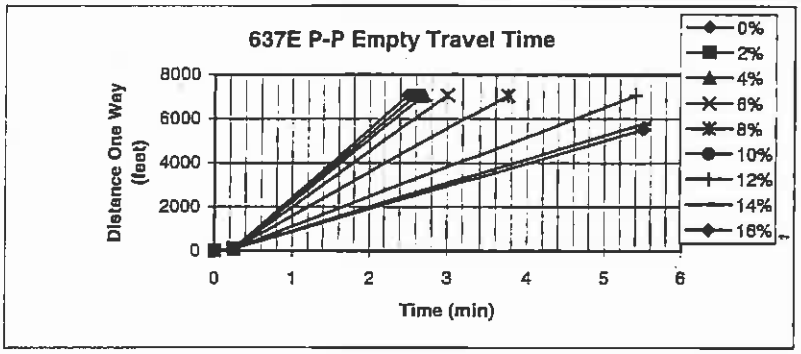
Loaded Distance (ft)	700
Loaded Grade (%)	-5.0
Loaded Effective Grade (%)	0.0
Empty Distance (ft)	700
Empty Grade (%)	5.0
Empty Effective Grade (%)	10.0

Production Times

Typical Load Time for 637E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved (cy)
292,321





Cycle Time = 1.0 (Load Time) + 0.4 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.6 (Empty Trip Time) = 2.6 min

Cycles/Hour = 60 min/hr / 2.6 Cycle Time = 23 cycles/hr

Hourly Production = 31 Adjusted Load (cy) x 23.08 Cycles/Hour = 715 cy/hr

Hours Required = 292,321 Volume / 715 Hourly Production x 1.371 Work Schedule Factor = 560 hrs

APPROVED SEP 2005

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-12
Mine Area:	N-14
Project:	Topsoil/Suitable Material Replacement
Task:	Topsoil Replacement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place topsoil onto graded spoil areas

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

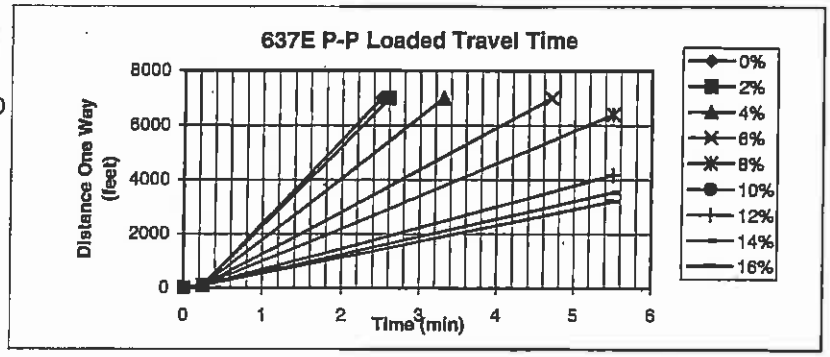
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

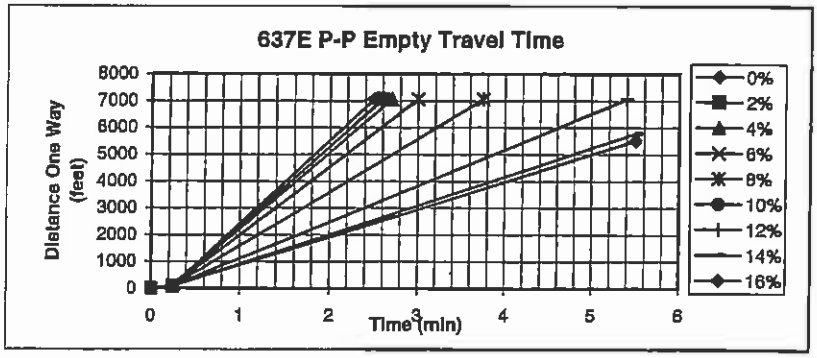
Loaded Distance (ft)	5,300
Loaded Grade (%)	2.5
Loaded Effective Grade (%)	7.5
Empty Distance (ft)	5,300
Empty Grade (%)	1.0
Empty Effective Grade (%)	6.0

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	2.4
Empty Travel Time (from chart)	1.9

Quantity of Material to be Moved (cy)
487,201





Cycle Time = 1.0 (Load Time) + 2.4 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.9 (Empty Trip Time) = **5.9 min**

Cycles/Hour = 60 min/hr / 5.9 (Cycle Time) = **10 cycles/hr**

Hourly Production = 31 (Adjusted Load (cy)) x 10.17 (Cycles/Hour) = **315 cy/hr**

Hours Required = 487,201 (Volume) / 315 (Hourly Production) x 1.371 (Work Schedule Factor) = **2119 hrs**

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-13
Mine Area:	N-14
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-14 Mining Area (Category I)

Revegetation Area

Area (acre)	189
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 189 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$234,226**

Reseeding Costs = 189 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$76,628**

References: Table 24-1-3 and 24-2-7.

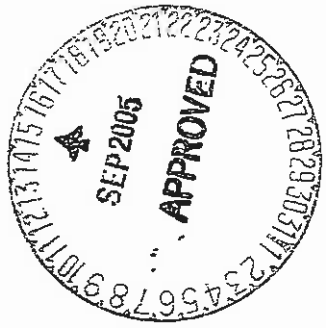


Table:	24-3-14
Mine Area:	N-14
Project:	Revegetation
Task:	Revegetation of Topsoil Stockpile
Equipment:	Miscellaneous

Revegetation Area Description
N-14 Mining Area (Category I) - Topsoil Stockpiles

Revegetation Area

Area (acre)	15.2
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 15 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$18,863**

Reseeding Costs = 15 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$6,171**

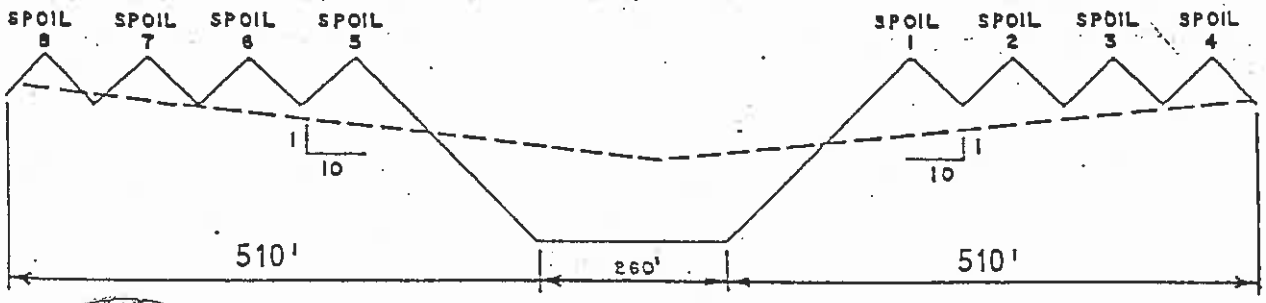
References: Table 24-1-3 and 24-2-7.

Mine Area N-14E
Project Open Pit Backfilling

Date Open Pit Backfilling

WORKSHEET NO. N-14E-1

EARTHWORK QUANTITY WORKSHEET



Open Pit Volume

Area = 7,900 sq.ft. (digitized area)

Pit Length = 3,400 ft. (actual) x 2 = 6,800' (double wide pit)
Pit Volume Needed = 994,800 cu.yd.

Spoil to Open Pit

Spoils 1, 2, 5, 6 = 7,900 sq. ft. x 3,400 ft. = 994,800 cu. yd.

Spoil Grading

Spoils 3, 4, 7, 8 = 4,120 sq. ft. x 3,400 ft. = 518,800 cu. yd.

Revised 03/23/95

Table:	24-3-03
Mine Area:	N-14E
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils (Highwall Side)
Equipment:	D11R Dozer

Earthmoving Activity:
Doze blasted highwall reduction material into pit

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

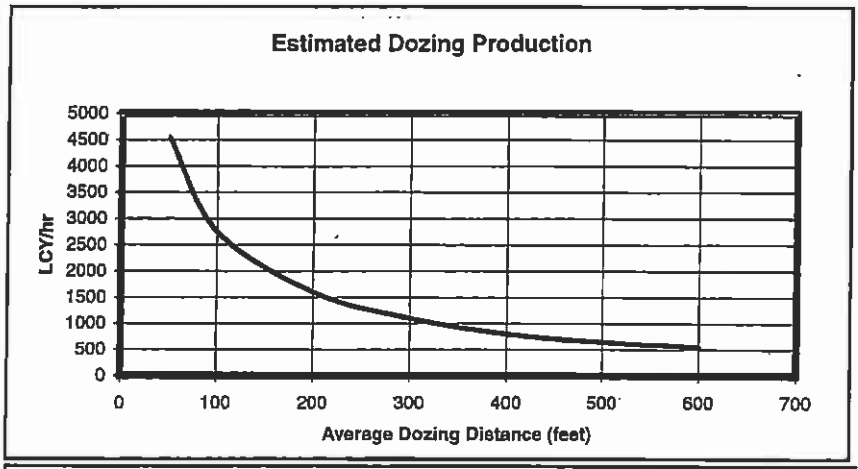
Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility
(i.e., dust, rain, snow, fog, or darkness) (0.8) no

Elevation Factor
<7,500 feet (1.0) yes

Quantity of Material to be Moved (cy)
497,405



Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.00 (Material Factor) x 1.4 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.0 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.86**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.86 (Productivity Adjustment Factor) = **1,380 cy/hr**

Hours Required = 497,405 (Volume to be Moved) / 1,380 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 494 Hours

References: Tables 24-2-3 and 24-3-2, and Cat Handbook, Ed 28

Table:	24-3-04
Mine Area:	N-14E
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils (Spoil Side)
Equipment:	D11R Dozer

Earthmoving Activity:
Doze first two spoil ridges (first two spoils go into pit)

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	-20
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

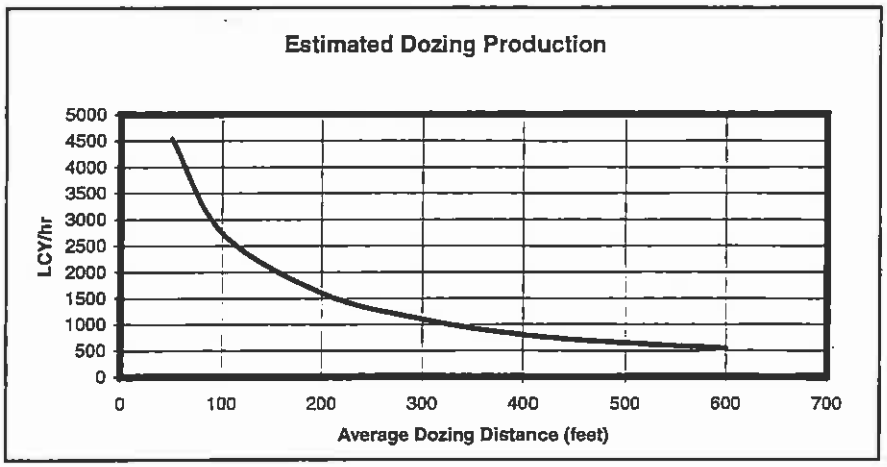
Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility
(i.e., dust, rain, snow, fog, or darkness) (0.8) no

Elevation Factor
<7,500 feet (1.0) yes

Quantity of Material to be Moved (cy)
497,405



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.4 (Grade Factor) x 0.82 (Density Correction)
x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 1.04

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 1.04 (Productivity Adjustment Factor) = 1,656 cy/hr

Hours Required = 497,405 (Volume to be Moved) / 1,656 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 412 Hours

References: Table 24-2-3, Cat Handbook, Ed. 28.

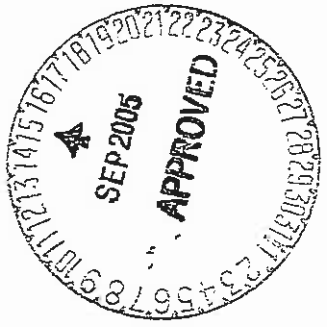
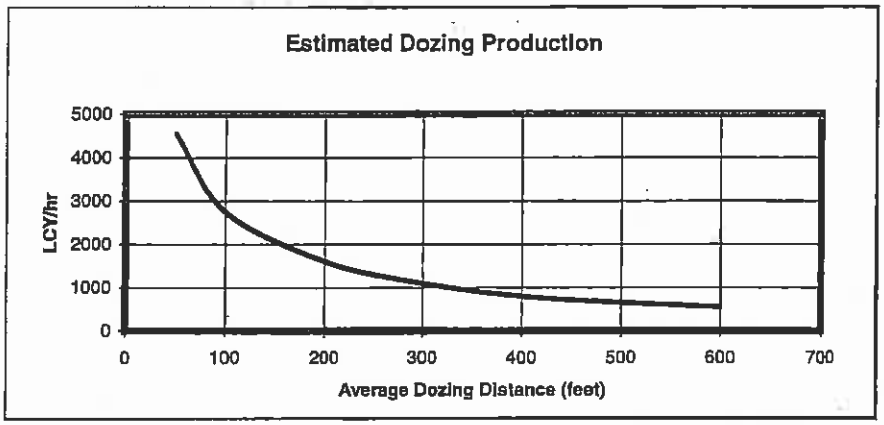


Table:	24-3-05
Mine Area:	N-14E
Project:	Backfill Mine Pits
Task:	Doze Back Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze back two spoil ridges

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	100
Hourly production (from chart)	2,800
Grade (in percent)	-10
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustment Factors

Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Cable controlled blade (.6)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.20 (Material Factor) x 1.2 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.89**

Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Net Hourly Production = 2,800 (Normal Hourly Production (see graph above)) x 0.89 (Operating Adjustment Factor) = **2,484 cy/hour**

Poor Visibility	
(I.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes

Hours Required = 518,810 (Volume to be Moved) / 2,484 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **286 hours**

Quantity of Material to be Moved (cy)
518,810

References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-06
Mine Area:	N-14E
Project:	Backfill and Grade Ramps
Task:	Backfill/Grade Ramps
Equipment:	D11R Dozer

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:

Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

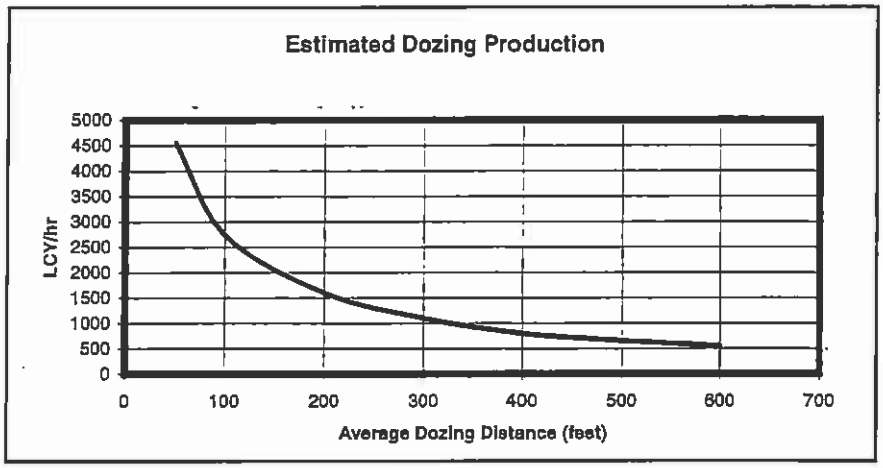
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
166200



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.00 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.74**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = **1,183 cy/hr**

Hours Required = 166,200 (Volume to be Moved) / 1,183 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **193 hours**

References: Table 24-2-4, Cat Handbook, Ed. 28

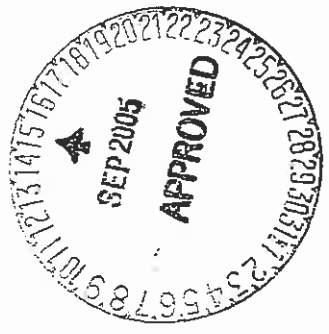


Table:	24-3-07
Mine Area:	N-14E
Project:	General Grading
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

21 acres

Hours Required	=	21 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 = Work Schedule Factor	230 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-5

Table:	24-3-08
Mine Area:	N-14E
Project:	Surface Stabilization
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement
24,940 lineal feet

Hours Required	=	24,940 / Terrace Requirement (ft)	1,060 x Production Rate (ft/hr)	1.371 = Work Schedule Factor	32 Hours

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

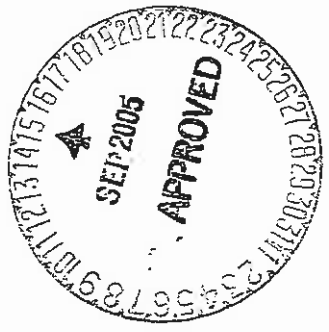


Table:	24-3-09
Mine Area:	N-14E
Project:	Surface Stabilization
Task:	Grade Drainages/Downdrains
Equipment:	D7R Dozer

Earthmoving Activity
Grade drainages and downdrains.

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 800

Drainages/Downdrains Requirement
4,520 lineal feet

Hours Required	=	4,520 / Drainages/Downdrain Requirement (ft)	800 x Production Rate (ft/hr)	1.371 = Work Schedule Factor	8 Hours

Note: Production rate based on average grading speed of 2 mph and 12 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-10	Page 1
Mine Area:	N-14E	
Project:	Surface Stabilization	
Task:	Load, haul, and place riprap	
Equipment:	988F Loader Series II	
	769D Rear Dump Truck	

Earthmoving Activity

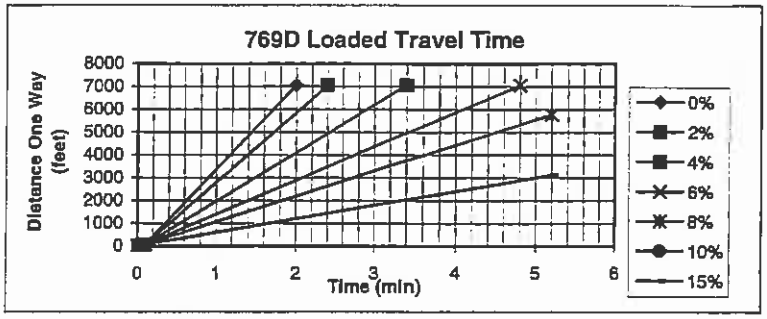
Load, haul,and place riprap in main channels and downdrains.

Characterization of Equipment Used (type, size, etc):

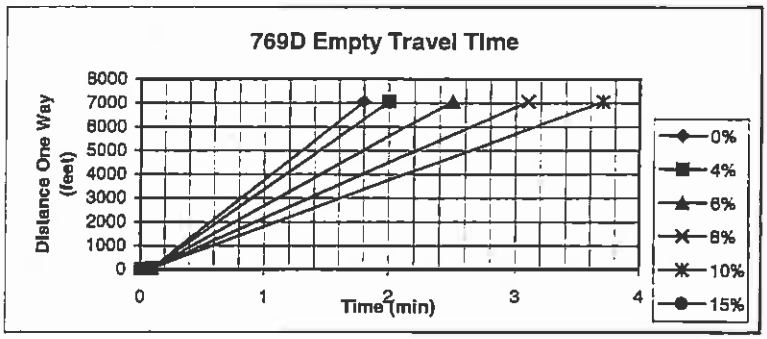
988F Loader Series II - bucket capacity	7.8	cy
769D Rear Dump Truck - truck capacity	30.9	cy

Loading and Haulage

Productivity Factors	
Basic Loader Cycle (min)	0.58
Bulky Material (min)	0.03
Dumped Pile (min)	0.02
Common Loader/Truck Ownership (min)	-0.04
Work Hour Factor (50 min/hr)	0.83
Bucket Fill Factor	0.85
Truck Loaded Volume-4 passes (cy)	26.52
Haulage Distance (ft)	2,100
Effective Grade (%)	4



Production Times	
Haul Time (min)	0.8
Dump Time (min)	1.1
Return Time (min)	0.60
Truck/Loader Match (trucks per loader)	2
Riprap Haulage Requirement (cy)	12,100



Placement

Riprap Placement Requirement (ft)	4,750
Placement Rate (ft/shift)	500
Shift (hours)	8

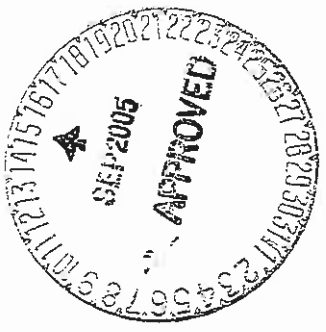


Table: 24-3-10 (cont.) Page 2
Mine Area: N-14E
Project: Surface Stabilization
Task: Load, haul, and place riprap
Equipment: 988F Loader Series II
769D Rear Dump Truck

Load Summary

Loader Cycle Time	= 0.58 Basic Loader Cycle Time	+ 0.03 Bulky Material	+ 0.02 Dumped Pile	+ -0.04 Common Leader/Truck	= 0.59 min				
Loader Volume per Cycle	= 7.80 Bucket Capacity	x 0.85 Bucket Fill Factor	= 6.63 cy						
Loader Cycle Time (per truck)	= 0.59 Loader Cycle Time	x 4 Passes per Truck	= 2.36 min						

Haul Summary

Truck Cycle Time	= 2.36 Load Time	+ 0.8 Haul Time	+ 1.1 Dump Time	+ 0.60 Return Time	= 4.86 min				
Fleet Productivity	=(2 Loader/Truck Match	x 26.52 Truck Loaded Volume	)/(2 Loader/Truck Match	x 4.86 Truck Cycle Time	)x 60 min/hr	= 327 cy/hr			
Required Fleet Hours	= 12,100 Riprap Haulage Requirement	/ 327 Fleet Productivity	x 1.371 Work Schedule Factor	= 51 hrs					

Placement Summary

Required Loader Hours	=(4,750 Riprap Placement Requirement	/ 500 Placement Rate	)x 8 Operating Shift	x 1.371 Work Schedule Factor	= 104 hrs				

Notes: Riprap placement rate based on PWCC experience. Riprap placement length based on 20 percent of main channels and 50 percent of downdrain channels.

References: Table 24-2-6, Cat Handbook, Ed. 28.

Table:	24-3-11
Mine Area:	N-14E
Project:	Topsoil/Suitable Material Replacement
Task:	Suitable Material Placement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place suitable material to graded spoil areas

Characterization of Equipment Used

637E P-P Scraper - capacity	31	cy

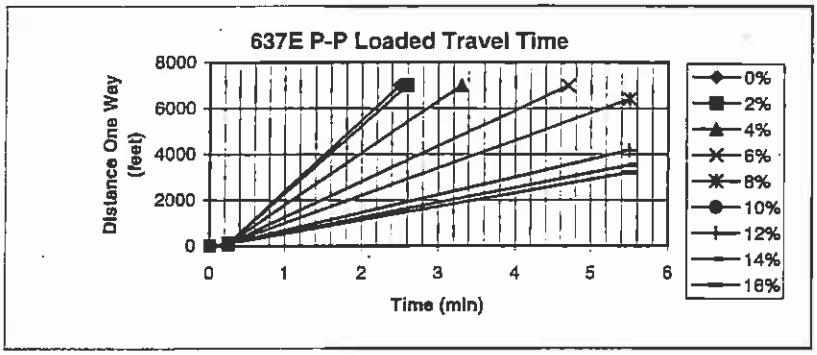
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

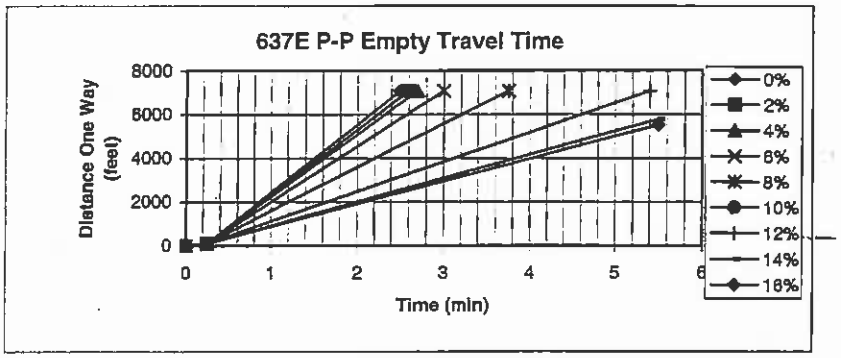
Loaded Distance (ft)	700
Loaded Grade (%)	-5
Loaded Effective Grade (%)	0
Empty Distance (ft)	700
Empty Grade (%)	5
Empty Effective Grade (%)	10

Production Times

Typical Load Time for 637E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved (cy)
218,694





Cycle Time =	1.0 Load Time	+	0.4 Loaded Trip Time	+	0.6 Maneuver and Spread Time	+	0.6 Empty Trip Time	=	2.6 min

Cycles/Hour =	60 min/hr	/	2.6 Cycle Time	=	23 cycles/hr
Hourly Production =	31 Adjusted Load (cy)	x	23.08 Cycles/ Hour	=	715 cy/hr

Hours Required =	218,694 Volume	/	715 Hourly Production	x	1.371 Work Schedule Factor	=	419 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-12
Mine Area:	N-14E
Project:	Topsoil/Suitable Material Replacement
Task:	Topsoil Replacement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place topsoil onto graded spoil areas

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

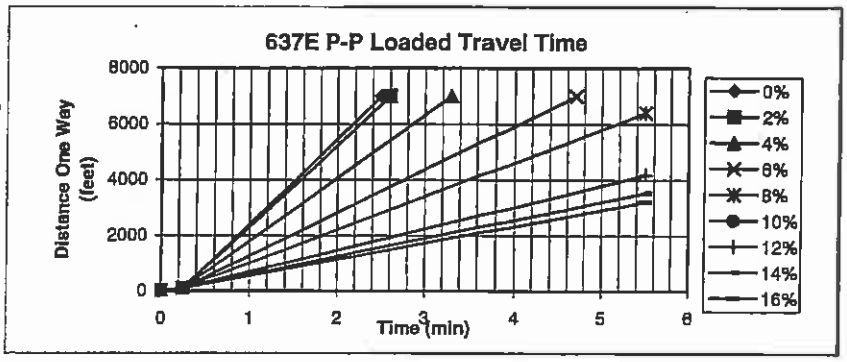
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

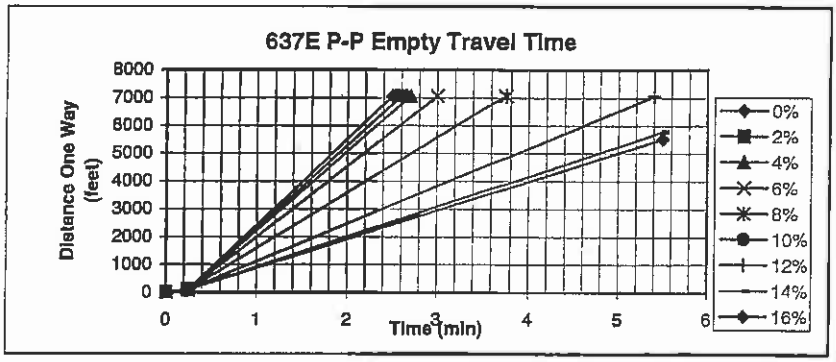
Loaded Distance (ft)	4,400
Loaded Grade (%)	-1
Loaded Effective Grade (%)	4.0
Empty Distance (ft)	4,400
Empty Grade (%)	-2.0
Empty Effective Grade (%)	3.0

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	1.0
Empty Travel Time (from chart)	0.7

Quantity of Material to be Moved (cy)
227,806





Cycle Time = 1.0 (Load Time) + 1.0 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.7 (Empty Trip Time) = **3.3 min**

Cycles/Hour = 60 min/hr / 3.3 (Cycle Time) = **18 cycles/hr**

Hourly Production = 31 (Adjusted Load (cy)) x 18.18 (Cycles/Hour) = **564 cy/hr**

Hours Required = 227,806 (Volume) / 564 (Hourly Production) x 1.371 (Work Schedule Factor) = **554 hrs**

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-13
Mine Area:	N-14E
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-14E Mining Area (Category I)

Revegetation Area

Area (acre)	141
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 141 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$175,232**

Reseeding Costs = 141 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$57,328**

References: Table 24-1-3 and 24-2-7.

Table:	24-3-14
Mine Area:	N-14E
Project:	Revegetation
Task:	Revegetation of Topsoil Stockpile
Equipment:	Miscellaneous

Revegetation Area Description
N-14E Mining Area (Category I) - Topsoil Stockpiles

Revegetation Area

Area (acre)	18.7
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 19 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$23,207**

Reseeding Costs = 19 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$7,592**

References: Table 24-1-3 and 24-2-7.

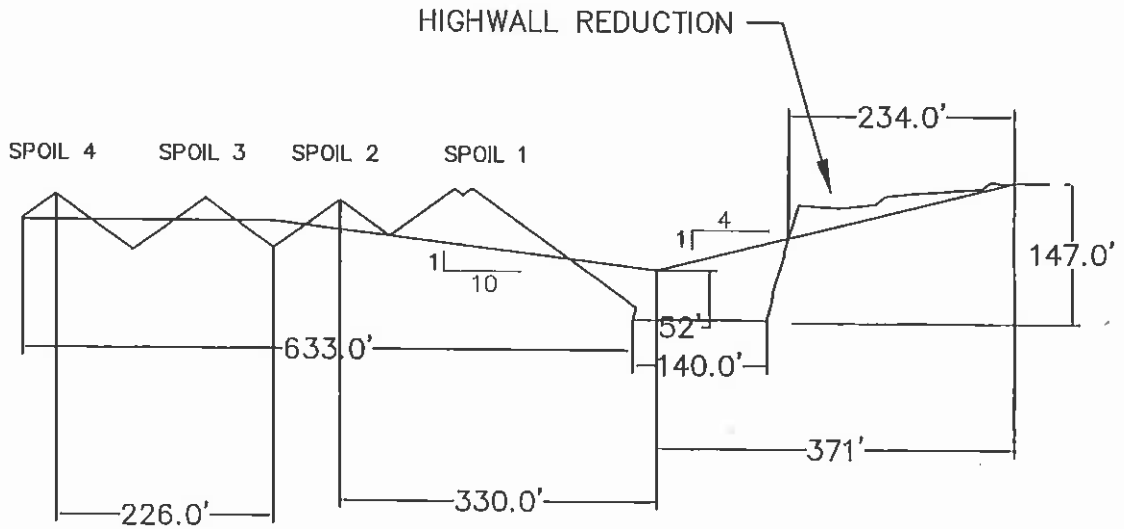
MINE AREA: N9

Worksheet No. 24-3-1

Earthwork Quantity Worksheet

SEP 2005

APPROVED



HIGHWALL REDUCTION

Area = 3,240 ft

Pit Length = 9,000 ft

Volume = 1,080,000 cy

Swelled Volume = 1,350,000 cy

SPOIL TO OPEN PIT

Spoil 1,2= 2,473,667 cy

SPOIL GRADING

Spoil 3,4 = 822,330 cy

SCALE

100' 0 100' 200'

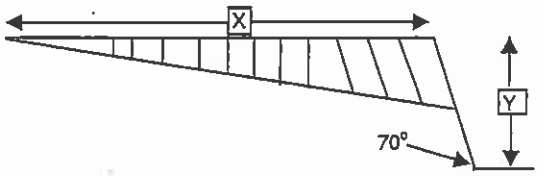
CONTOUR INTERVAL N/A

AutoCAD: N9FinalSection.dwg

Table:	24-3-02	Page 1
Mine Area:	N-9	
Project:	Highwall Reduction	
Task:	Cast/Blast Highwall	
Equipment:	Driltech D55SP	

Activity Description
Drill, load, and blast highwall

Drill Rig is Driltech D55SP



Highwall Reduction Dimensions:

X (feet)	234
Y (feet)	147
Number of Rows	9

Drill Pattern (Cast) - 21'x24'

Hole Diameter (inches)	10 5/8
Powder Factor (lbs/cy)	0.65
Explosive Weight (lbs)[1] (single hole sequence)	1,859

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
1	21	57	1058
2	42	51	954
3	63	45	849
Total	126	153	2,861

Drill Pattern (Blast) - 21'x24'

Hole (inches)	9 7/8
Powder Factor (lbs/cy)	0.55
Explosive Weight (lbs)[2] (single hole sequence)	1,502

Row	Distance to Highwall (ft)	Drillhole Footage (ft)	Overburden Volume per Hole (cy)
4	84	38	700
5	105	32	602
6	126	27	504
7	147	22	406
8	168	17	308
9	189	11	210
Total	819	146	2,730

Notes:
1. Weight of explosives (cast rows, 1,2, and 3) based on total overburden volume and powder factor (0.65 lbs/cy).
2. Weight of explosives (blast rows, 4 and up) based on total overburden volume and powder factor (0.55 lbs/cy).

Table: 24-3-02 (cont. Page 2
Mine Area: N-9
Project: Highwall Reduction
Task: Cast/Blast Highwall
Equipment: Driltech D55SP

Activity Description
Drill, load, and blast highwall

Drill Rig is Driltech D55SP

Assumptions

Drilling Rate (ft/hr)	150
Bit Life (hrs)	
Cast 10 5/8"	370
Blast 9 7/8"	170

Unit Costs

Bit Cost (per bit)	
Cast 10 5/8"	$2,400
Blast 9 7/8"	$1,800
Explosives (per pound)[2]	$0.10
Drill Cost (per hour)	$196.78

Labor Costs

Driller Rate (per hour)	$26.59
Blaster Rate (per hour)	$27.67
Driller/Blaster Helper Rate (per hour)	$13.14

Cast Holes (Rows 1-3)

Total Drill Footage = (9,000 Pit Length / 24 Drill Hole Spacing) x 153 Total Drillhole Footage (Rows 1-3) = **57,466 feet**

Total Overburden Volume = (9,000 Pit Length / 24 Drill Hole Spacing) x 2,861 Total Overburden Volume (Rows 1-3) = **1,072,691 cy**

Drilling Time = 57,466 Total Drill Footage / 150 Drilling Rate) x 1.371 Work Schedule Factor = **525 hours**

Drilling Cost = 525 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate
+ (1/370 Bit Life x $2,400 Bit Cost)) = **$127,673**

Load and Blast Cost[1] = (525 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate)
+ (1,072,691 Total Overburden Volume x 0.65 Powder Factor x $0.10 Explosive Cost) = **$260,752**

Blast Holes (Rows 4 and up)

Total Drill Footage = (9,000 Pit Length / 24 Drill Hole Spacing) x 146 Total Drillhole Footage (Rows 4 and up) = **54,844 feet**

Total Overburden Volume = (9,000 Pit Length / 24 Drill Hole Spacing) x 2,730 Total Overburden Volume (Rows 4 and up) = **1,023,750 cy**

Drilling Time = 54,844 Total Drill Footage / 150 Drilling Rate x 1.371 Work Schedule Factor = **501 hours**

Drilling Cost = 501 Drilling Time x ($196.78 Drill Cost + $26.59 Driller Rate + $13.14 Driller Helper Rate
+ (1/170 Bit Life x $1,800 Bit Cost)) = **$123,904**

Load and Blast Cost[1] = (501 Drilling Time x $27.67 Blaster Rate x $13.14 Blaster Helper Rate)
+ (1,023,750 Total Overburden Volume x 0.55 Powder Factor x $0.10 Explosive Cost) = **$238,618**

Total Cost

$127,673 Drilling Cost (Cast Holes) + $260,752 Load and Blast Cost[1] (Cast Holes) + $123,904 Drilling Cost (Blast Holes) + $238,618 Load and Blast Cost[1] (Blast Holes) = **$750,946**

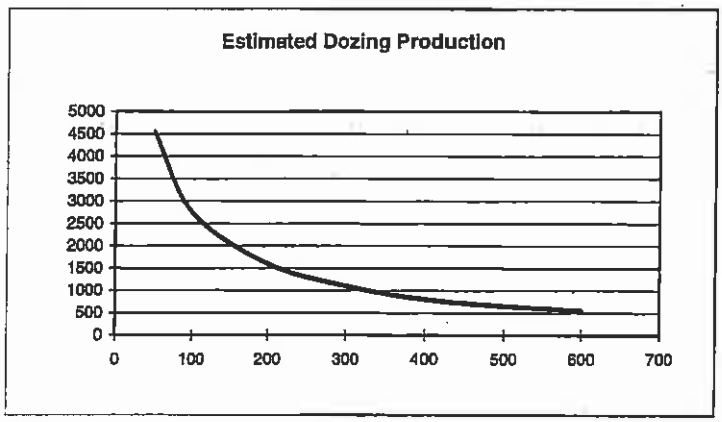
Notes:
1. Assumes continuous drill/load/blast sequence with loading and blasting time being roughly equivalent to drilling time.
2. All explosive supplies (i.e. explosives, primers, etc.) are included in explosives cost.

References: Tables 24-1-1, 24-1-2, 24-2-3, and 24-3-1.

Table:	24-3-03
Mine Area:	N-9
Project:	Backfill Mine Pits
Task:	Doze Highwall
Equipment:	D11R Dozer

Earthmoving Activity:
Doze blasted highwall reduction material into pit

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes



Description of Dozer Use:

Average dozing distance (feet)	185.5
Hourly production (from chart)	1,700
Grade (in percent)	-25
Grade Correction	1.5
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
1,012,500

Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.00 (Material Factor) x 1.5 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.0 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 0.92

Net Hourly Production = 1,700 (Normal Hourly Production (see graph above)) x 0.92 (Productivity Adjustment Factor) = 1,571 cy/hr

Hours Required = 1,012,500 (Volume to be Moved) / 1,571 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 884 Hours

Note: Quantity of material to be moved includes swelled highwall reduction volume from Table 24-2-3 less 25% for blast casting

References: Tables 24-2-3 and 24-3-2, and Cat Handbook, Ed. 28

Table:	24-3-04
Mine Area:	N-9
Project:	Backfill Mine Pits
Task:	Doze First Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze first two spoil ridges (first two spoils go into pit)

Characterization of Dozer Used (type, size, etc):

D11R, three-shank ripper, U-blade	
Power shift transmission (1.0)	yes

Description of Dozer Use:

Average dozing distance (feet)	164.5
Hourly production (from chart)	2,000
Grade (in percent)	-10
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

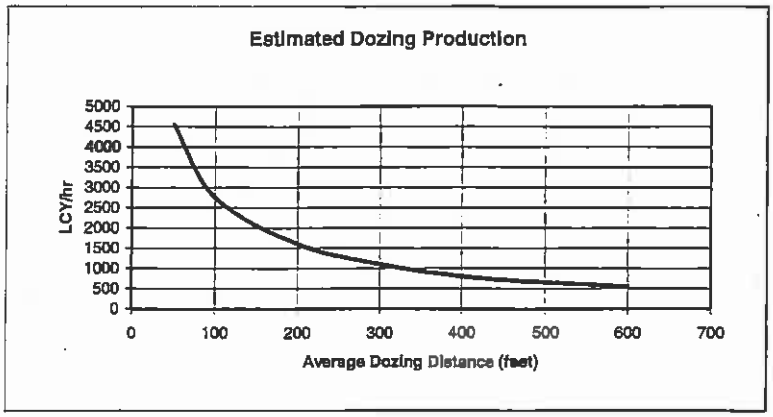
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
2,473,670



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.4 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 1.04

Net Hourly Production = 2,000 (Normal Hourly Production (see graph above)) x 1.04 (Productivity Adjustment Factor) = 2,070 cy/hr

Hours Required = 2,473,670 (Volume to be Moved) / 2,070 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 1,639 Hours

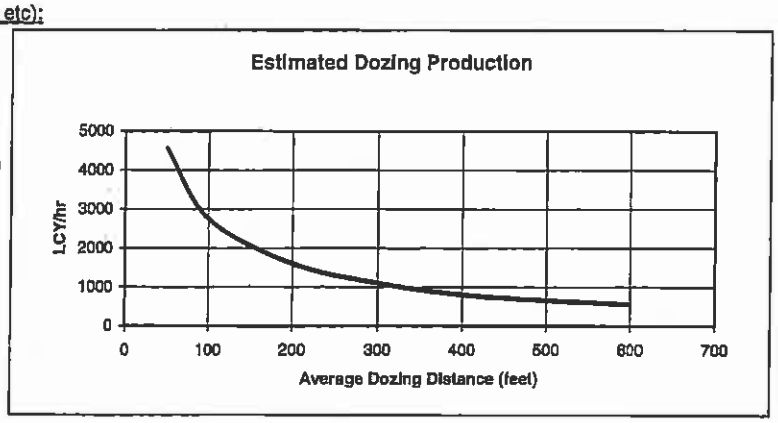
References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-05
Mine Area:	N-9
Project:	Backfill Mine Pits
Task:	Doze Back Two Spoils
Equipment:	D11R Dozer

Earthmoving Activity:
Doze back two spoil ridges

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use:	
Average dozing distance (feet)	113
Hourly production (from chart)	2,600
Grade (in percent)	0
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82



Productivity Adjustment Factors

Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Cable controlled blade (.6)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes

Productivity Adjustment Factor = 0.75 (Operator Factor) x 1.20 (Material Factor) x 1.2 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.89**

Net Hourly Production = 2,600 (Normal Hourly Production (see graph above)) x 0.89 (Operating Adjustment Factor) = **2,307 cy/hour**

Hours Required = 822,330 (Volume to be Moved) / 2,307 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **489 hours**

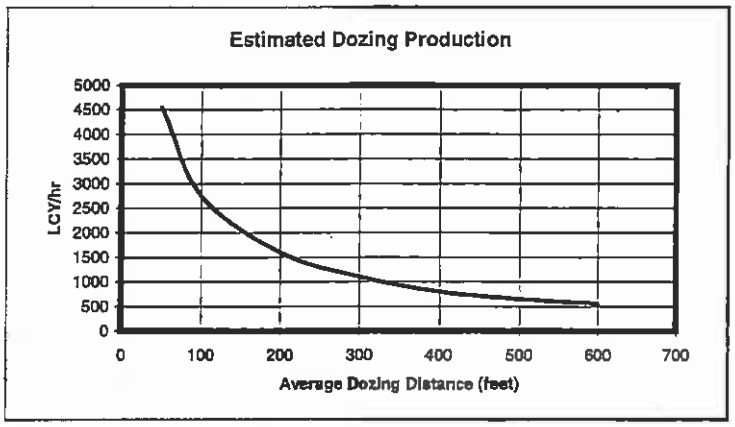
Quantity of Material to be Moved (cy)
822,330

References: Table 24-2-3, Cat Handbook, Ed. 28.

Table:	24-3-06
Mine Area:	N-9
Project:	Backfill and Grade Ramps
Task:	Backfill/Grade Ramps
Equipment:	D11R Dozer

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use:	
Average dozing distance (feet)	200
Hourly production (from chart)	1,600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,600
Density Correction	0.82



Productivity Adjustment Factors

Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor	
Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visiblity	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor	
<7,500 feet (1.0)	yes

Quantity of Material to be Moved (cy)
832091

Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.20 (Material Factor) x 1.00 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visiblity) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 0.74

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = 1,183 cy/hr

Hours Required = 832,091 (Volume to be Moved) / 1,183 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 965 hours

References: Table 24-2-4, Cat Handbook, Ed. 28

Table:	24-3-07
Mine Area:	N-9
Project:	General Grading
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity
Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded
498 acres

Hours Required	=	498 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	= 5,464 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-5

Table:	24-3-08
Mine Area:	N-9
Project:	Surface Stabilization
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement
52,000 lineal feet

Hours Required	=	52,000 / Terrace Requirement (ft)	1,060 x Production Rate (ft/hr)	1.371 = Work Schedule Factor	67 Hours

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-09
Mine Area:	N-9
Project:	Surface Stabilization
Task:	Grade Drainages/Downdrains
Equipment:	D7R Dozer

Earthmoving Activity
Grade drainages and downdrains.

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 800

Drainages/Downdrains Requirement
9,000 lineal feet

Hours Required	=	9,000 / Drainages/Downdrain Requirement (ft)	800 Production Rate (ft/hr)	x 1.371 Work Schedule Factor	= 15 Hours

Note: Production rate based on average grading speed of 2 mph and 12 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-3-10	Page 1
Mine Area:	N-9	
Project:	Surface Stabilization	
Task:	Load, haul, and place riprap	
Equipment:	988F Loader Series II	
	769D Rear Dump Truck	

Earthmoving Activity

Load, haul,and place riprap in main channels and downdrains.

Characterization of Equipment Used (type, size, etc):

988F Loader Series II - bucket capacity	7.8	cy
769D Rear Dump Truck - truck capacity	30.9	cy

Loading and Haulage

Productivity Factors

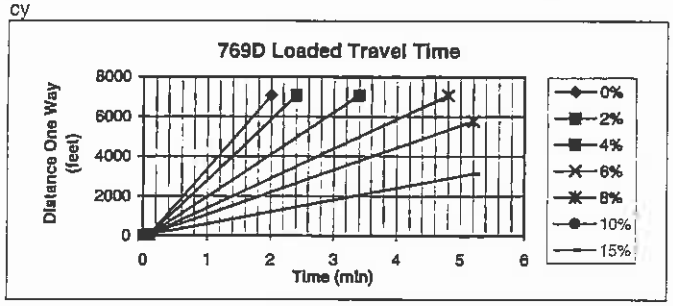
Basic Loader Cycle (min)	0.58
Bulky Material (min)	0.03
Dumped Pile (min)	0.02
Common Loader/Truck Ownership (min)	-0.04
Work Hour Factor (50 min/hr)	0.83
Bucket Fill Factor	0.85
Truck Loaded Volume-4 passes (cy)	26.52
Haulage Distance (ft)	2,500
Effective Grade (%)	5

Production Times

Haul Time (min)	0.0
Dump Time (min)	0.0
Return Time (min)	0.00
Truck/Loader Match (trucks per loader)	1
Riprap Haulage Requirement (cy)	21,000

Placement

Riprap Placement Requirement (ft)	6,300
Placement Rate (ft/shift)	500
Shift (hours)	8



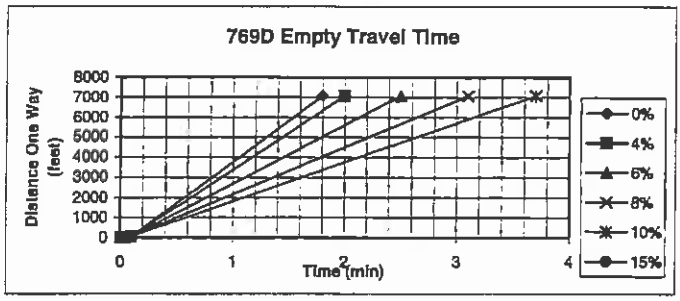


Table: 24-3-10 (cont.) Page 2
Mine Area: N-9
Project: Surface Stabilization
Task: Load, haul, and place riprap
Equipment: 988F Loader Series II
769D Rear Dump Truck

Load Summary

Loader Cycle Time	= 0.58 Basic Loader Cycle Time	+ 0.03 Bulky Material	+ 0.02 Dumped Pile	+ -0.04 Common Leader/Truck	=	0.59	min	
Loader Volume per Cycle	= 7.80 Bucket Capacity	x 0.85 Bucket Fill Factor	=	6.63	cy			
Loader Cycle Time (per truck)	= 0.59 Loader Cycle Time	x 4 Passes per Truck	=	2.36	min			

Haul Summary

Truck Cycle Time	= 2.36 Load Time	+ 0.0 Haul Time	+ 0.0 Dump Time	+ 0.00 Return Time	=	2.36	min	
Fleet Productivity	=(1 Loader/Truck Match	x 26.52 Truck Loaded Volume	)/(1 Loader/Truck Match	x 2.36 Truck Cycle Time	)x 60 min/hr	=	674	cy/hr
Required Fleet Hours	= 21,000 Riprap Haulage Requirement	/ 674 Fleet Productivity	x 1.371 Work Schedule Factor	=	43	hrs		

Placement Summary

Required Loader Hours	=(6,300 Riprap Placement Requirement	/ 500 Placement Rate	)x 8 Operating Shift	x 1.371 Work Schedule Factor	=	138.2	hrs	

Notes: Riprap placement rate based on PWCC experience. Riprap placement length based on 20 percent of main channels and 50 percent of downdrain channels.

References: Table 24-2-6, Cat Handbook, Ed. 28.

Table:	24-3-11
Mine Area:	N-9
Project:	Topsoil/Suitable Material Replacement
Task:	Suitable Material Placement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place suitable material to graded spoil areas

Characterization of Equipment Used

637E P-P Scraper - capacity	31	cy

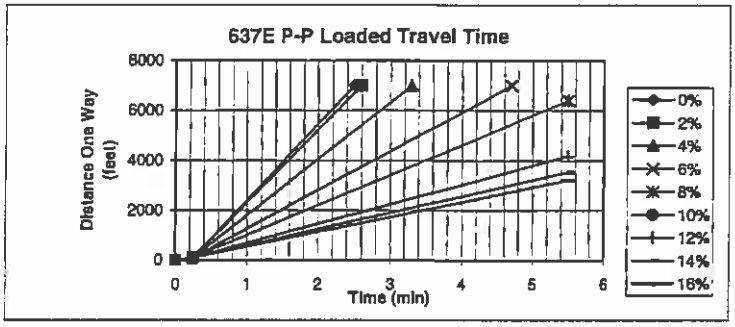
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

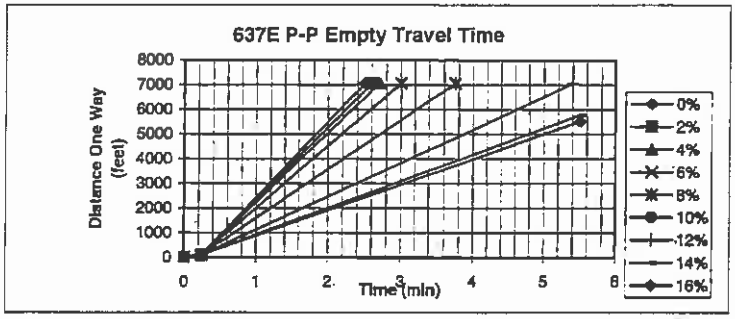
Loaded Distance (ft)	700
Loaded Grade (%)	-5
Loaded Effective Grade (%)	0
Empty Distance (ft)	700
Empty Grade (%)	5
Empty Effective Grade (%)	10

Production Times

Typical Load Time for 637E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved (cy)
1,499,014





Cycle Time	=	1.0 Load Time	+	0.4 Loaded Trip Time	+	0.6 Maneuver and Spread Time	+	0.6 Empty Trip Time	=	2.6 min
Cycles/Hour	=	60 min/hr	/	2.6 Cycle Time	=	23 cycles/hr				
Hourly Production	=	31 Adjusted Load (cy)	x	23.08 Cycles/ Hour	=	715 cy/hr				

Hours Required	=	1,499,014 Volume	/	715 Hourly Production	x	1.371 Work Schedule Factor	= 2,874 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-12
Mine Area:	N-9
Project:	Topsoil/Suitable Material Replacement
Task:	Topsoil Replacement
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place topsoil onto graded spoil areas

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

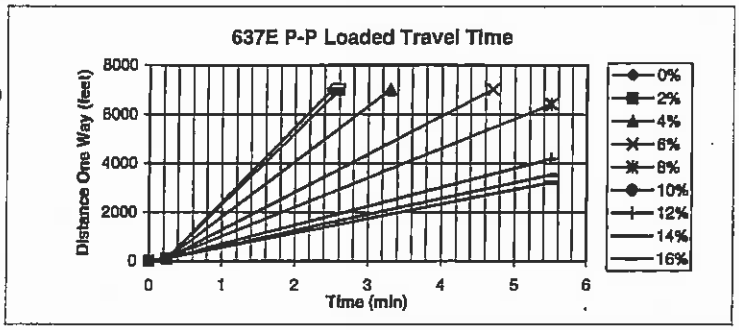
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

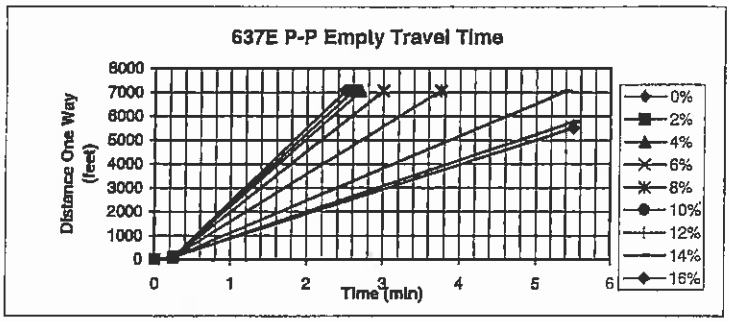
Loaded Distance (ft)	5,300
Loaded Grade (%)	2.5
Loaded Effective Grade (%)	7.5
Empty Distance (ft)	5,300
Empty Grade (%)	-2.5
Empty Effective Grade (%)	2.5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	3.2
Empty Travel Time (from chart)	1.5

Quantity of Material to be Moved (cy)
2,498,357





Cycle Time = 1.0 (Load Time) + 3.2 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.5 (Empty Trip Time) = 6.3 min

Cycles/Hour = 60 (min/hr) / 6.3 (Cycle Time) = 10 cycles/hr

Hourly Production = 31 (Adjusted Load (cy)) x 9.52 (Cycles/Hour) = 295 cy/hr

Hours Required = 2,498,357 (Volume) / 295 (Hourly Production) x 1.371 (Work Schedule Factor) = 11605.27 hrs

References: Table 24-2-7, Cat Handbook, Ed. 28

Table:	24-3-13
Mine Area:	N-9
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-9 Mining Area (Category I)

Revegetation Area

Area (acre)	968
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 968 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$1,201,109**

Reseeding Costs = 968 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$392,949**

References: Table 24-1-3 and 24-2-7.

Table:	24-3-14
Mine Area:	N-9
Project:	Revegetation
Task:	Revegetation of Topsoil Stockpiles
Equipment:	Miscellaneous

Revegetation Area Description
N-9 Mining Area (Category I) - Topsoil Stockpiles

Revegetation Area	
Area (acre)	77
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 77 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = $95,681

Reseeding Costs = 77 Acres * 0.5 Failure * $812.00 Reseeding Cost = $31,303

References: Table 24-1-3 and 24-2-7.

ATTACHMENT 24-4

MAINTENANCE AREA (CATEGORY II AND IIA) WORKSHEETS

Category II

- General Grading
- Dozer Ripping
- Revegetation
- Grade Terraces

Category IIA

- General Grading
- Dozer Ripping
- Revegetation

Table:	24-4-01
Mine Area:	J-1/N-6
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

0 acres

Hours Required	=	0 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	x	0.50 Category II Adjustment	=	0 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	J-1/N-6
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

0	acres
0	cy

Cycle Time = Rip Distance (300) / Speed Factor (fpm) (120) + Turn Time (0.25) = **2.8 min/pass**

Passes per hour = 60 min/hr / Cycle Time (2.8) = **21.8 pass/hr**

Volume ripped per pass = (Tool Penetration (3.00) x Rip Spacing (6.4) x Rip Length (300)) / cf/cy (27) = **213 cy/pass**

Ripping Production = Volume cut per pass (213) x Passes per hour (21.8) = **4655 cy/hr**

Hours Required = Volume to be Ripped (0) / Ripping Production (4655) x Work Schedule Factor (1.371) x Category II Adjustment (0.50) = **0 hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table: 24-4-03
Mine Area: J-1/N-6
Project: Revegetation at 50%
Task: Revegetation
Equipment: Miscellaneous

Revegetation Area Description
J-1 Mine Area (Category II)

Revegetation Area	
Area (acre)	0
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (0 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category II Adjustment = **$0**

Reseeding Costs = 0 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$0**

References: Tables 24-1-3 and 24-2-2

Table:	24-4-04
Mine Area:	Black Mesa
Project:	Surface Stabilization at 50%
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement
3,000 lineal feet

Hours Required	=	3,000 / Terrace Requirement (ft)	1,060 x Production Rate (ft/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	**1.9 Hours**

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-4-01
Mine Area:	J-16
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity
Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded
201 acres

Hours Required	=	201 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	1103 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	J-16
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

201	acres
972,917	cy

Cycle Time = Rip Distance (300) / Speed Factor (fpm) (120) + Turn Time (0.25) = **2.8 min/pass**

Passes per hour = 60 min/hr / Cycle Time (2.8) = **21.8 pass/hr**

Volume ripped per pass = (Tool Penetration (3.00) x Rip Spacing (6.4) x Rip Length (300)) / cf/cy (27) = **213 cy/pass**

Ripping Production = Volume cut per pass (213) x Passes per hour (21.8) = **4655 cy/hr**

Hours Required = Volume to be Ripped (972,917) / Ripping Production (4655) x Work Schedule Factor (1.371) x Category II Adjustment (0.50) = **143 hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-03
Mine Area:	J-16
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
J-16 Mine Area (Category II)

Revegetation Area

Area (acre)	201
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (201.016 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs))* 0.50 Category II Adjustment = **$124,730**

Reseeding Costs = 201.016 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$40,806**

References: Tables 24-1-3 and 24-2-2

Table:	24-4-01
Mine Area:	J-19
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity
Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded
403 acres

Hours Required	=	403 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	2210 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	J-19
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
403	acres
1,950,196	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume ripped per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213 cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 cy/hr**

Hours Required = 1,950,196 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category II Adjustment) = **287 hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-03
Mine Area:	J-19
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
J-19 Mine Area (Category II)

Revegetation Area

Area (acre)	= 403
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (402.933 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category II Adjustment = **$250,020**

Reseeding Costs = 402.933 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$81,795**

References: Tables 24-1-3 and 24-2-2

Table:	24-4-01
Mine Area:	J-21Single Width
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

431 acres

Hours Required	=	431 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	2363 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	J-21
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
431	acres
2,084,549	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8** min/pass

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8** pass/hr

Volume ripped per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213** cy/pass

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655** cy/hr

Hours Required = 2,084,549 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category II Adjustment) = **307** hours

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-03
Mine Area:	J-21
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
J-21 Mine Area (Category II)

Revegetation Area

Area (acre)	431
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (430.692 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs))* 0.50 Category II Adjustment = **$267,244**

Reseeding Costs = 430.692 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$87,430**

References: Tables 24-1-3 and 24-2-2

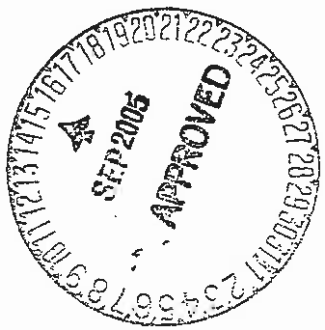


Table:	24-4-01
Mine Area:	N-1
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

188 acres

Hours Required	=	188 / Area to be Graded (acres)	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	x	0.50 Category II Adjustment	=	1034 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	N-1
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
188	acres
912,117	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume ripped per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213 cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 cy/hr**

Hours Required = 912,117 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category II Adjustment) = **134 hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-03
Mine Area:	N-1
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-1 Mine Area (Category II)

Revegetation Area	
Area (acre)	188
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (188.454 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category II Adjustment = **$116,936**

Reseeding Costs = 188.454 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$38,256**

References: Tables 24-1-3 and 24-2-2

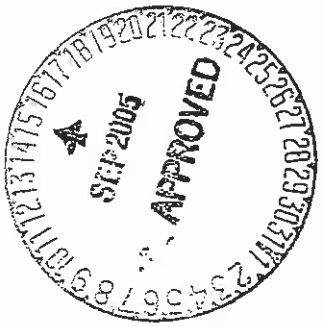


Table:	24-4-01
Mine Area:	N-2
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity
Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded
79 acres

Hours Required	=	79 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	435 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	N-2
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
79	acres
384,044	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8** min/pass

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8** pass/hr

Volume cut per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213** cy/pass

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655** cy/hr

Hours Required = 384,044 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category II Adjustment) = **57** hours

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-03
Mine Area:	N-2
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-2 Mine Area (Category II)

Revegetation Area

Area (acre)	79
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (79.348 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs))* 0.50 Category II Adjustment = **$49,235**

Reseeding Costs = 79.348 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$16,108**

References: Tables 24-1-3 and 24-2-2

Table:	24-4-01
Mine Area:	N-7/8
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity
Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded
18 acres

Hours Required	=	18 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	99 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	N-7/8
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

18	acres
87,120	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213 cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 cy/hr**

Hours Required = 87,120 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category II Adjustment) = **13 hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-03
Mine Area:	N-7/8
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-7/8 Mine Area (Category II)

Revegetation Area

Area (acre)	18
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 18 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)* 0.50 Category II Adjustment = **$11,169**

Reseeding Costs = 18 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$3,654**

References: Tables 24-1-3 and 24-2-2

Table:	24-4-01
Mine Area:	N-9
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

223 acres

Hours Required	=	223 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	1223 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

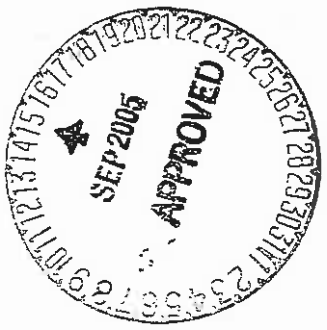


Table:	24-4-02
Mine Area:	N-9
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
223	acres
1,079,320	cy

Cycle Time = Rip Distance (300) / Speed Factor (fpm) (120) + Turn Time (0.25) = **2.8 min/pass**

Passes per hour = 60 min/hr / Cycle Time (2.8) = **21.8 pass/hr**

Volume cut per pass = (Tool Penetration (3.00) x Rip Spacing (6.4) x Rip Length (300)) / cf/cy (27) = **213 cy/pass**

Ripping Production = Volume cut per pass (213) x Passes per hour (21.8) = **4655 cy/hr**

Hours Required = Volume to be Ripped (1,079,320) / Ripping Production (4655) x Work Schedule Factor (1.371) x Category II Adjustment (0.50) = **159 hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table: 24-4-03
Mine Area: N-9
Project: Revegetation at 50%
Task: Revegetation
Equipment: Miscellaneous

Revegetation Area Description
N-11 Mine Area (Category II)

Revegetation Area

Area (acre)	223
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (223 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category II Adjustment = **$138,372**

Reseeding Costs = 223 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$45,269**

References: Tables 24-1-3 and 24-2-2

Table:	24-4-01
Mine Area:	N-10
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

20 acres

Hours Required	=	20 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	112 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	N-10
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
20	acres
98,838	cy

Cycle Time = Rip Distance 300 / Speed Factor (fpm) 120 + Turn Time 0.25 = **2.8** min/pass

Passes per hour = 60 min/hr / 2.8 Cycle Time = **21.8** pass/hr

Volume cut per pass = (3.00 Tool Penetration x 6.4 Rip Spacing x 300 Rip Length) / 27 cf/cy = **213** cy/pass

Ripping Production = 213 Volume cut per pass x 21.8 Passes per hour = **4655** cy/hr

Hours Required = 98,838 Volume to be Ripped / 4655 Ripping Production x 1.371 Work Schedule Factor x 0.50 Category II Adjustment = **15** hours

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-03
Mine Area:	N-10
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-10 Mine Area (Category II)

Revegetation Area	
Area (acre)	20
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (20.421 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category II Adjustment = **$12,671**

Reseeding Costs = 20.421 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$4,145**

References: Tables 24-1-3 and 24-2-2

Table:	24-4-01
Mine Area:	N-11
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

93 acres

Hours Required	=	93 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	511 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	N-11
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
93	acres
450,948	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213 cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 cy/hr**

Hours Required = 450,948 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category II Adjustment) = **66 hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-03
Mine Area:	N-11
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-11 Mine Area (Category II)

Revegetation Area

Area (acre)	93
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (93.171 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category II Adjustment = **$57,813**

Reseeding Costs = 93.171 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$18,914**

References: Tables 24-1-3 and 24-2-2

Table:	24-4-01
Mine Area:	N-14
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

280 acres

Hours Required	=	280 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	1533 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	N-14
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

280	acres
1,352,940	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213 cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 cy/hr**

Hours Required = 1,352,940 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category II Adjustment) = **199 hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-03
Mine Area:	N-14
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-14 Mine Area (Category II)

Revegetation Area

Area (acre)	280
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (279.533 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category II Adjustment = **$173,450**

Reseeding Costs = 279.533 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$56,745**

References: Tables 24-1-3 and 24-2-2

Table:	24-4-01
Mine Area:	N-14E
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

35 acres

Hours Required	=	35 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	194 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	N-14E
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

35	acres
171,409	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = 2.8 min/pass

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = 21.8 pass/hr

Volume cut per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = 213 cy/pass

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = 4655 cy/hr

Hours Required = 171,409 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category II Adjustment) = 25 hours

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-03
Mine Area:	N-14E
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-14E Mine Area (Category II)

Revegetation Area

Area (acre)	35
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (35.415 Acres) * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) * 0.50 Category II Adjustment = **$21,975**

Reseeding Costs = 35.415 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$7,189**

References: Tables 24-1-3 and 24-2-2

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Table:	24-4-01
Mine Area:	Kayenta Facilities
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

35 acres

Hours Required	=	35 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	194 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-02
Mine Area:	Kayenta Facilities
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

35	acres
171,409	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume ripped per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213 cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 cy/hr**

Hours Required = 171,409 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category II Adjustment) = **25 hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-03
Mine Area:	Kayenta Facilities
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
J-16 Mine Area (Category II)

Revegetation Area

Area (acre)	35
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (35.415 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category II Adjustment = **$21,975**

Reseeding Costs = 35.415 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category II Adjustment = **$7,189**

References: Tables 24-1-3 and 24-2-2

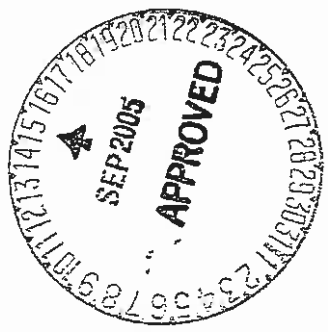

Table:	24-4-04
Mine Area:	Kayenta
Project:	Surface Stabilization at 50%
Task:	Grade Terraces
Equipment:	D7R Dozer

Earthmoving Activity
Grade terraces

Characterization of Dozer Used (type, size, etc)
D7R, U-blade

Production Rate (lineal ft/hr) 1,060

Terrace Requirement
128,000 lineal feet

Hours Required	=	128,000 / Terrace Requirement (ft)	1,060 x Production Rate (ft/hr)	1.371 x Work Schedule Factor	0.50 = Category II Adjustment	83 Hours

Note: Production rate based on average grading speed of 3 mph and 5 passes (PWCC experience).

Reference: Table 24-2-6

Table:	24-4-05
Mine Area:	J-16
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

103 acres

Hours Required	=	103 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category IIA Adjustment	568 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-06
Mine Area:	J-16
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

103	acres
500,780	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8** min/pass

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8** pass/hr

Volume ripped per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213** cy/pass

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655** cy/hr

Hours Required = 500,780 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category IIA Adjustment) = **74** Hours

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-07
Mine Area:	J-16
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
J-16 Mine Area (Category IIAA)

Revegetation Area

Area (acre)	103
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (103.467 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category IIA Adjustment = **$64,201**

Reseeding Costs = 103.467 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category IIA Adjustment = **$21,004**

References: Tables 24-1-3 and 24-2-2

Table:	24-4-05
Mine Area:	J-19
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

1,482 acres

Hours Required	=	1,482 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category IIA Adjustment	8127 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-06
Mine Area:	J-19
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
1,482	acres
7,170,736	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume ripped per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213 cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 cy/hr**

Hours Required = 7,170,736 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category IIA Adjustment) = **1056 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table: 24-4-07
Mine Area: J-19
Project: Revegetation at 50%
Task: Revegetation
Equipment: Miscellaneous

Revegetation Area Description
J-19 Mine Area (Category IIA)

Revegetation Area	
Area (acre)	1,482
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (1481.56 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category IIA Adjustment = **$919,306**

Reseeding Costs = 1481.56 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category IIA Adjustment = **$300,756**

References: Tables 24-1-3 and 24-2-2

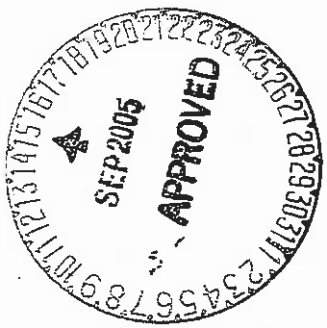

Table:	24-4-05
Mine Area:	J-21
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity
Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded
2,699 acres

Hours Required	=	2,699 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category IIA Adjustment	14805 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-06
Mine Area:	J-21
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
2,699	acres
13,062,652	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8** min/pass

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8** pass/hr

Volume ripped per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213** cy/pass

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655** cy/hr

Hours Required = 13,062,652 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category IIA Adjustment) = **1924 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-07
Mine Area:	J-21
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
J-21 Mine Area (Category IIA)

Revegetation Area

Area (acre)	2,699
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (2698.9 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category IIA Adjustment = **$1,674,664**

Reseeding Costs = 2698.9 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category IIA Adjustment = **$547,876**

References: Tables 24-1-3 and 24-2-2

Table:	24-4-05
Mine Area:	N-1
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

188 acres

Hours Required	=	188 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category IIA Adjustment	1034 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

Table:	24-4-06
Mine Area:	N-1
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

188	acres
912,117	cy

Cycle Time = 300 (Rip Distance) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume ripped per pass = (3.00 (Tool Penetration) x 6.4 (Rip Spacing) x 300 (Rip Length)) / 27 (cf/cy) = **213 cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 cy/hr**

Hours Required = 912,117 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) x 0.50 (Category IIA Adjustment) = **134 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-07
Mine Area:	N-1
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-1 Mine Area (Category IIA)

Revegetation Area

Area (acre)	188
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (188.454 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category IIA Adjustment = **$116,936**

Reseeding Costs = 188.454 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category IIA Adjustment = **$38,256**

References: Tables 24-1-3 and 24-2-2

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Table:	24-4-05
Mine Area:	N-11
Project:	General Grading at 50%
Task:	General Grading
Equipment:	D11R Dozer

Earthmoving Activity

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading. Assume that the grading required is a mixture of rough grading and final grading.

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

89 acres

Hours Required	=	89 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 x Work Schedule Factor	0.50 = Category IIA Adjustment	488 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-2

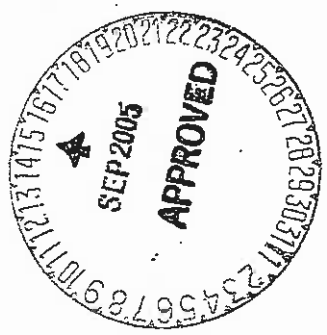


Table:	24-4-06
Mine Area:	N-11
Project:	Surface Ripping at 50%
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

89	acres
430,760	cy

Cycle Time = Rip Distance / Speed Factor (fpm) + Turn Time = **2.8** min/pass

Passes per hour = 60 min/hr / 2.8 Cycle Time = **21.8** pass/hr

Volume ripped per pass = (Tool Penetration 3.00 x Rip Spacing 6.4 x Rip Length 300) / cf/cy 27 = **213** cy/pass

Ripping Production = Volume cut per pass 213 x Passes per hour 21.8 = **4655** cy/hr

Hours Required = Volume to be Ripped 430,760 / Ripping Production 4655 x Work Schedule Factor 1.371 x Category IIA Adjustment 0.50 = **63** Hours

References: Cat Handbook, Ed. 28, Table 24-2-2.

Table:	24-4-07
Mine Area:	N-11
Project:	Revegetation at 50%
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
N-11 Mine Area (Category IIA)

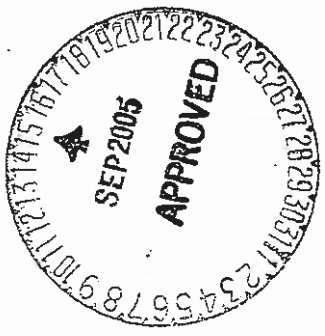
Revegetation Area

Area (acre)	89
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = (89 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs)) * 0.50 Category IIA Adjustment = **$55,225**

Reseeding Costs = 89 Acres * 0.5 Failure * $812.00 Reseeding Cost * 0.50 Category IIA Adjustment = **$18,067**

References: Tables 24-1-3 and 24-2-2



ATTACHMENT 24-5

FACILITIES AREA (CATEGORY V) WORKSHEETS

Major Facilities (Separate Sets for Black Mesa and Kayenta)

- Demolish Facilities
- Concrete Removal/Disposal
- Surfacing Removal/Disposal
- Dozer Ripping
- Facilities Area Grading
- Haul and Place Topsoil
- Revegetation

Conveyors

- Demolish Conveyor

Powerlines

- Powerline Removal

Scoria Pits

- Dozer Ripping
- Scoria Pit Grading
- Haul and Place Topsoil
- Revegetation

Landfarm

- Haul Landfarm Material
- Dozer Ripping
- Landfarm Grading
- Haul and Place Topsoil
- Revegetation

Airport (Black Mesa Only)

- Asphalt Removal/Disposal
- Dozer Ripping

Permanent Roads

- Doze Roads
- Dozer Ripping
- Grading
- Haul and Place Topsoil
- Revegetation

Primary Roads

- Culvert Removal/Disposal
- Surfacing Removal/Disposal
- Dozer Ripping
- Grading

ATTACHMENT 24-5

FACILITIES AREA (CATEGORY V) WORKSHEETS

(Continued)

Primary Roads
(Continued)

- Haul and Place Topsoil
- Revegetation

Ancillary Roads

- Culvert Removal/Disposal
- Surfacing Removal/Disposal
- Dozer Ripping
- Grading
- Haul and Place Topsoil
- Revegetation

Water Storage and
Sedimentation Ponds

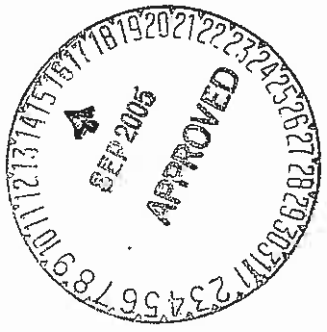
- Sediment Removal
- Grade Embankment into Basin
- Grading
- Haul and Place Topsoil
- Revegetation

Environmental Monitoring Sites

- Concrete Removal/Disposal
- Site Reclamation

Monitoring Wells

- Well Reclamation



N-11 Coal Handling Facility

- Cut/Fill Earthwork
- Grading

Draglines and Shovels

- Removal

Equipment Requirements and On-Site Mobilization

- Equipment Requirements
- On-Site Mobilization

Table: 24-5-01
Mine Area: Black Mesa
Project: Facilities Demolition
Task: Demolish Facilities
Equipment: Miscellaneous

Description	Quantity (ft^3 unless noted)	Unit Cost	Total
Mine Conveyor Belts (ft)	5244	$44.25	$232,047
Sample Tower Building	122,400	$0.27	$33,048
Tire Shop	9,000	$0.27	$2,430
Bucket House	27,000	$0.27	$7,290
Tripple Control Building	18,304	$0.27	$4,942
Bath House	68,880	$0.27	$18,598
Shop/Warehouse	505,440	$0.27	$136,469
Old Electric Shop	86,020	$0.27	$23,225
Old Lab Building	11,808	$0.27	$3,188
Office	38,400	$0.27	$10,368
Welding Shop	166,400	$0.27	$44,928
Mine Sample Tower	20,000	$0.27	$5,400
Preparation Storage Bldg.	20,400	$0.27	$5,508
New Electric Shop	87,906	$0.27	$23,735
Canopy on Shops	8,640	$0.27	$2,333
Compressor Building	20,880	$0.27	$5,638
Truck Dump/Hopper	67,500	$0.27	$18,225
Live Storage	4,032,000	$0.27	$1,088,640
N-6 Explosive Storage	17,316	$0.27	$4,675
BM Water Tank	792,624	$0.27	$214,008
Eight (8) Pumphouses	12,288	$0.27	$3,318
Coal Lab Buildings	22,320	$0.27	$6,026
Warehouse Addition	37,800	$0.27	$10,206
Bathhouse Water Tank	13,400	$0.27	$3,618
A.G. Lube and Fuel Tanks	11,400	$0.27	$3,078
(2) Tipple Ship Buildings	24,000	$0.27	$6,480
Breaker Building	66,000	$0.27	$17,820
Pumphouse	14,400	$0.27	$3,888
(3) Water Tanks	30,000	$0.27	$8,100
Shop Addition	204,750	$0.27	$55,283
PM Slab	6,825	$0.27	$1,843
Shop Approach's (4)	8,424	$0.27	$2,274
Tank Farm Slab	6,825	$0.27	$1,843
Landfill Design Fee	-	-	$100,000
Total			**$2,108,472**

Structure Material	Demolition Unit Cost
Steel (s)	0.27
Concrete(c)	0.36

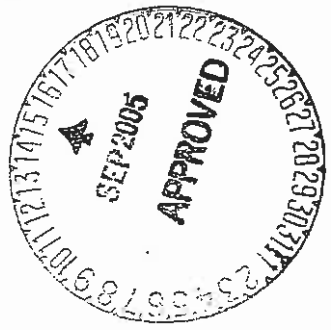


Table:	24-5-02
Mine Area:	Black Mesa
Project:	Concrete Removal
Task:	Concrete Removal/Disposal
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity

Remove 8" of concrete from facilities area.

Characterization of Dozer and Ripper Used:

D11R, single shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	0.7
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped: 5,152 cy

Cycle Time = Cut Length / Speed (fpm) + Turn Time = 300 / 120 + 0.25 = **2.8 min/pass**

Passes per hour = 60 min/hr / Cycle Time = 60 / 2.8 = **21.8 pass/hr**

Volume cut per pass = Tool Penetration x Cut Spacing x Cut Length / cf/cy = 0.67 x 6.4 x 300 / 27 = **47 bank cy/pass**

Ripping Production = Volume cut per pass x Passes per hour = 47 x 21.8 = **1,034 hours**

Hours Required = Volume to be Ripped / Ripping Production x Work Schedule Factor = 5,152 / 1,034 x 1.371 = **6.8 hours**

Concrete Disposal (at $8.20/cy)= $42,245.67

References: Cat Handbook, Ed. 28, Table 24-2-8.

Table:	24-5-03
Mine Area:	Black Mesa
Project:	Surfacing Removal
Task:	Surfacing Removal/Disposal
Equipment:	D11R Dozer

Earthmoving Activity:

Push 1' of gravel or scoria off the side of the facilities parking area.
Doze a trench 4' deep to accept surfacing material, then push the 4' of suitable material back over the top

Characterization of Dozer Used (type, size, etc):

D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use

Average dozing distance (feet)	200
Hourly production (from chart)	1,500
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

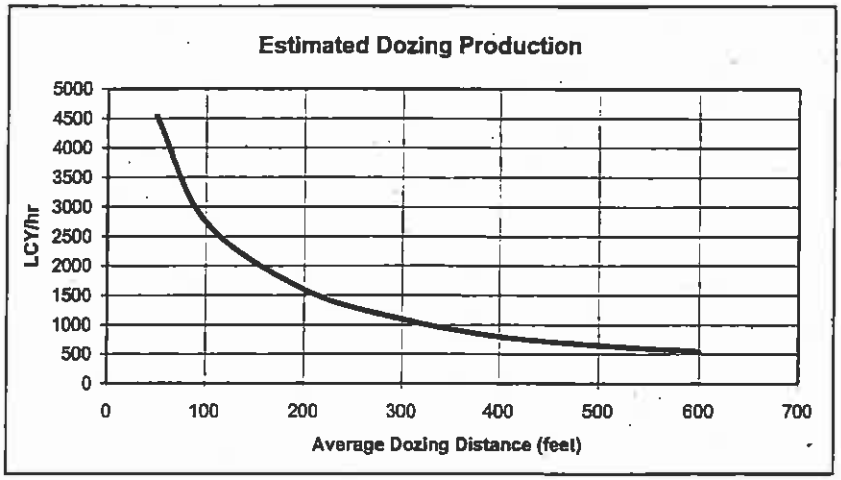
(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved

1,489,494	cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,500 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **923 cy/hr**

Hours Required = 1,489,494 (Volume to be Moved) / 923 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **2,214 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-8

Table:	24-5-04
Mine Area:	Black Mesa
Project:	Surface Ripping
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity

Rip 3' of subbase to aid in vegetation establishment.

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

1,140,304 cy

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / **2.8** (Cycle Time) = 21.8 pass/hr

Volume cut per pass = 3.00 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **213 bank cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = 4,655 hours

Hours Required = 1,140,304 (Volume to be Ripped) / 4,655 (Ripping Production) x 1.371 (Work Schedule Factor) = **336 hours**

Reference: Cat Handbook, Ed. 28, Table 24-2-8.

Table:	24-5-05
Mine Area:	Black Mesa
Project:	Grade Facilities Areas
Task:	Facilities Area Grading
Equipment:	D11R Dozer

Earthmoving Activity

Grading the cut and fills to blend into the surrounding topography to drain, burial of road surface material a minimum of three feet.

Characterization of Dozer Used (type, size, etc):

D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use

Average dozing distance (feet)	200
Hourly production (from chart)	1,500
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

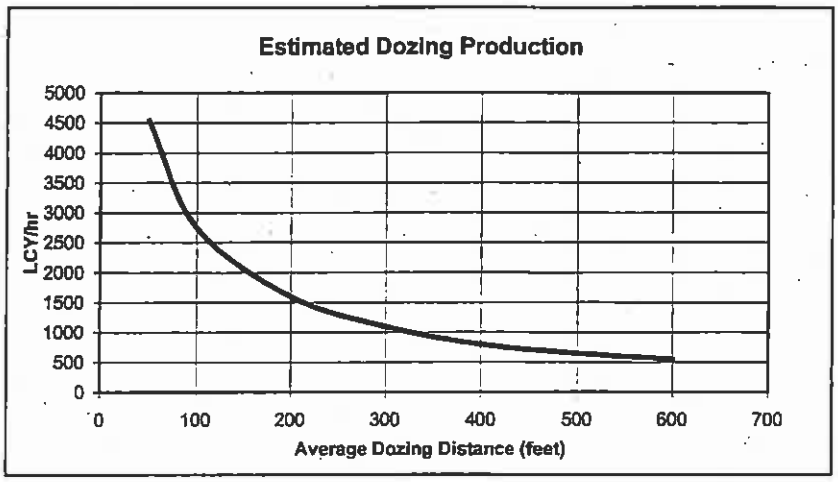
(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved

1,140,304	cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,500 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **923 cy/hr**

Hours Required = 1,140,304 (Volume to be Moved) / 923 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **1,695 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-8

Table:	24-5-06
Mine Area:	Black Mesa
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity

Haul 4' of material to cover concrete pads and 1.25' of material to cover remaining parking/storage areas.

Characterization of Scraper Used (type, capacity, etc)

637E P-P Scraper - capacity = 31 cy

Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

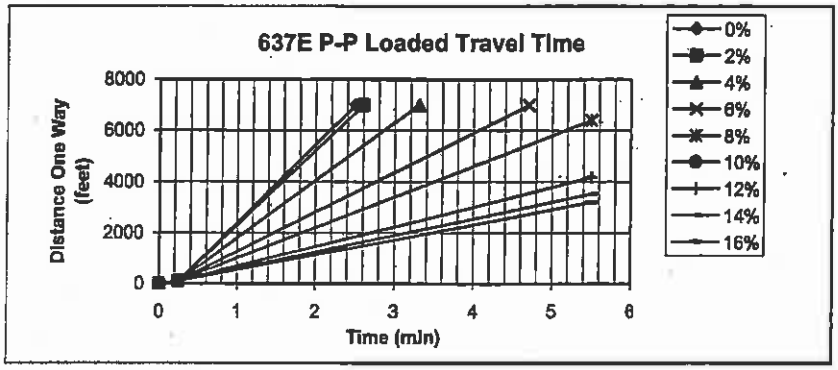
Loaded Distance (ft)	500
Loaded Grade (%)	0
Loaded Effective Grade (%)	3
Empty Distance (ft)	500
Empty Grade (%)	0
Empty Effective Grade (%)	3

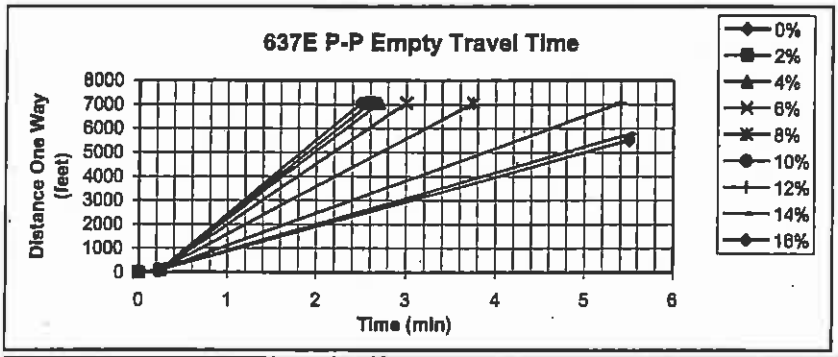
Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.4

Quantity of Material to be Moved

496,377 cy





Cycle Time = 1.0 (Load Time) + 0.4 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.4 (Empty Trip Time) = **2.4 min**

Cycles/Hour = 60 (min/hr) / 2.4 (Cycle Time) = **25 cycles/hr**

Hourly Production = 31 (Adjusted Load (cy)) x 25.00 (Cycles/Hour) = **775 cy/hr**

Hours Required = 496,377 (Volume) / 775 (Hourly Production) x 1.371 (Work Schedule Factor) = **878 hrs**

Reference: Table 24-2-8, Cat Handbook, Ed. 28

Table:	24-5-07
Mine Area:	Black Mesa
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Black Mesa Mine major facilities

Revegetation Area

Area (acre)	396
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 396 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$491,262**

Reseeding Costs = 396 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$160,719**

References: Table 24-1-3 and Table 24-2-8

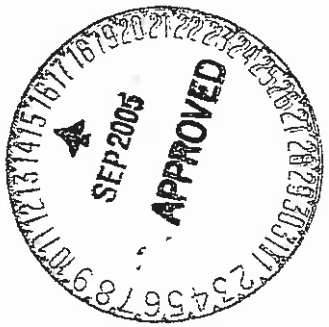


Table: 24-5-08
Mine Area: Black Mesa Conveyors
Project: Conveyor Demolition
Task: Demolish Conveyor
Equipment: Miscellaneous

Description	Quantity (ft)	Crew	Unit Cost	Demolition Cost
Conveyor System (steel)	5,244	B-8	$46.12	$241,826

Notes:
1. The conveyor system includes the belt, pans, idlers, and supports.
2. The unit cost includes concrete footing removal and disposal.
3. Means B-8 crew removes 90.5 feet of conveyor per day
4. Daily Rate for means B-8 Crew is $4173.60 from RSMeans Site Work & Landscape Cost Data 2004.

Table: 24-5-09
Mine Area: Black Mesa Powerlines
Project: Facilities-Powerlines
Task: Remove Powerlines
Equipment: Miscellaneous

Description	Quantity	Unit Cost	Demolition Cost
Powerline Removal (ft)	123,901	$1.14	$140,762

Assumptions:
1. Means crew R-6 removes 1 mile of powerline per day.
2. Daily rate for crew R-6 is $5998.55 from RSMeans Site Work & Landscape Cost Data 2004.

Table:	24-5-10
Mine Area:	Black Mesa Scoria Pits
Project:	Surface Ripping
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 3' of scoria pit prior to grading

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
355,014	cy

Cycle Time = Cut Length (300) / Speed Factor (fpm) (120) + Turn Time (0.25) = **2.8 min/pass**

Passes per hour = 60 min/hr / Cycle Time (2.8) = **21.8 pass/hr**

Volume cut per pass = Tool Penetration (3.00) x Cut Spacing (6.4) x Cut Length (300) / 27 cf/cy = **213 bank cy/pass**

Ripping Production = Volume cut per pass (213) x Passes per hour (21.8) = **4655 hours**

Hours Required = Volume to be Ripped (355,014) / Ripping Production (4655) x Work Schedule Factor (1.371) = **105 hours**

Reference: Cat Handbook, Ed. 28, Table 24-2-9.

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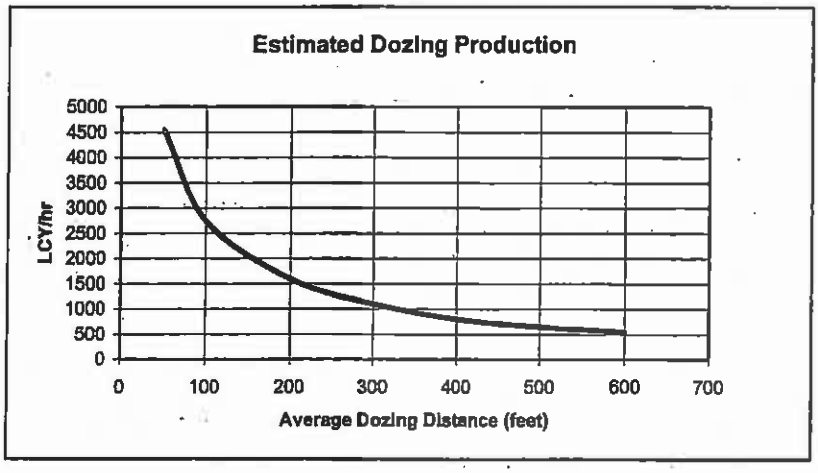
Table:	24-5-11
Mine Area:	Black Mesa Scoria Pits
Project:	Grade Scoria Pit Area
Task:	Scoria Pit Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grade scoria pit to blend into surrounding area.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use	
Average dozing distance (feet)	200
Hourly production (from chart)	1500
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82
Productivity Adjustment Factors	
Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes
Quantity of Material to be Moved	
355,014	cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,500 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **922.5 cy/hr**

Hours Required = 355,014 (Volume to be Moved) / 922.5 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **528 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-9

Table:	24-5-12
Mine Area:	Black Mesa Scoria Pits
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity
Topsoil disturbance area around scoria pits

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

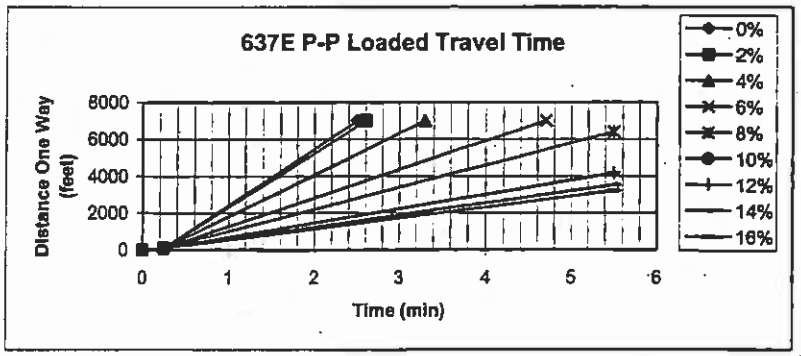
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

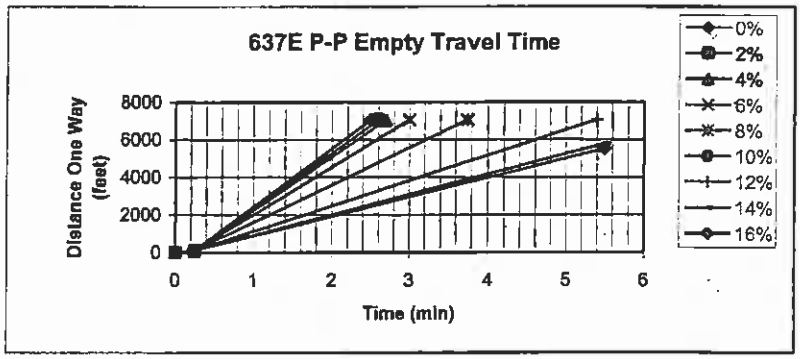
Loaded Distance (ft)	1500
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	1500
Empty Grade (%)	0
Empty Effective Grade (%)	5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	1.0
Empty Travel Time (from chart)	0.8

Quantity of Material to be Moved
189,341 cy





Cycle Time = 1.0 (Load Time) + 1.0 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.8 (Empty Trip Time) = **3.4 min**

Cycles/Hour = 60 (min/hr) / 3.4 (Cycle Time) = **18 cycles/hr**

Hourly Production = 31 (Adjusted Load (cy)) x 17.65 (Cycles/Hour) = **547 cy/hr**

Hours Required = 189,341 (Volume) / 547 (Hourly Production) x 1.371 (Work Schedule Factor) = **475 hrs**

Reference: Table 24-2-9, Cat Handbook, Ed. 28

Table:	24-5-13
Mine Area:	Black Mesa Scoria Pits
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Black Mesa Mine regraded scoria pits

Revegetation Area

Area (acre)	73
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 73 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$91,027**

Reseeding Costs = 73 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$29,780**

References: Table 24-1-3 and Table 24-2-9

Table:	24-5-19
Mine Area:	J-3 Airport
Project:	Asphalt Removal
Task:	Asphalt Removal/Disposal
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 4" asphalt material prior to dozing into trench.

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	0.3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped
9,066 cy

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = 0 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **21 bank cy/pass**

Ripping Production = 21 (Volume cut per pass) x 21.8 (Passes per hour) = **465 hours**

Hours Required = 9,066 (Volume to be Ripped) / 465 (Ripping Production) x 1.371 (Work Schedule Factor) = **27 hours**

Reference: Cat Handbook, Ed. 28, Table 24-2-8.

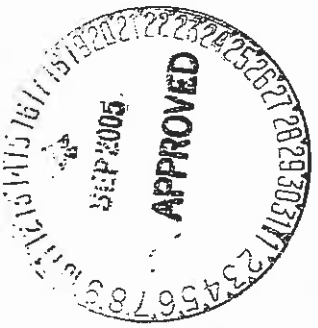


Table:	24-5-20
Mine Area:	J-3 Airport
Project:	Surface Ripping
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 3' of airport area prior to grading

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped
90,656 cy

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = 3.00 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **213 bank cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 hours**

Hours Required = 90,656 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) = **27 hours**

Reference: Cat Handbook, Ed. 28, Table 24-2-9.

Table:	24-5-21
Mine Area:	Black Mesa Permanent Roads
Project:	Dozing to Narrow Road
Task:	Doze Roads
Equipment:	D11R Dozer

Earthmoving Activity:
Push 50' of gravel/scoria off the side of the road for burial.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use:

Average dozing distance (feet)	50
Hourly production (from chart)	4,550
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	yes
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

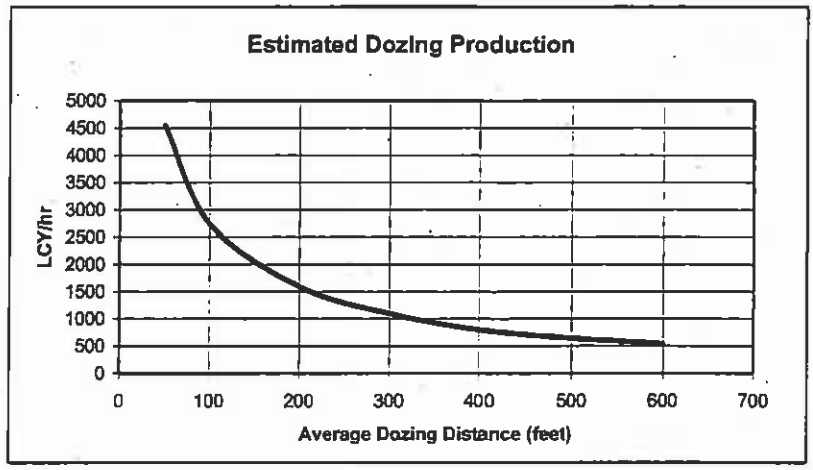
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved

Length (ft)	41,344
Width (ft)	50
Total (cy)	76,562



Productivity Adjustment Factor = 0.75 (Operator Factor) x 0.80 (Material Factor) x 1.0 (Grade Correction) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.0 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.49**

Net Hourly Production = 4,550 (Normal Hourly Production (see graph above)) x 0.49 (Productivity Adjustment Factor) = **2243 cy/hr**

Hours Required = 76562 (Volume to be Moved) / 2243 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **47 hrs**

Reference: Caterpillar Handbook, Ed. 33

Table:	24-5-22
Mine Area:	Black Mesa Permanent Roads
Project:	Surface Ripping to Narrow Road
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 3' of subbase to aid in vegetation establishment.

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u.blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
Length (ft)	41,344
Width (ft)	50
Total (cy)	229,686

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = 3.00 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **213 bank cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 hours**

Hours Required = 229,686 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) = **68 hours**

Reference: Cat Handbook, Ed. 28, Table 24-2-9.

Table:	24-5-23
Mine Area:	Black Mesa Permanent Roads
Project:	Grade Ripped Areas
Task:	Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grade the cut and fills to blend into surrounding topography and to drain and bury road surface material a minimum of 3'.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

Length (ft)	41,344
Width (ft)	100
Total (acres)	95

Hours Required	=	95 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	=	1041	Hours

Note: Production rate based on PWCC experience.

Table:	24-5-24
Mine Area:	Black Mesa Permanent Roads
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place 1.6' topsoil to cover graded area.

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

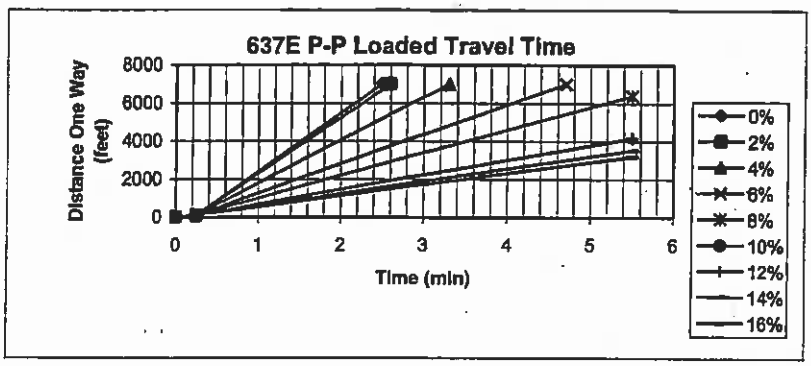
Loaded Distance (ft)	3000
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	3000
Empty Grade (%)	0
Empty Effective Grade (%)	5

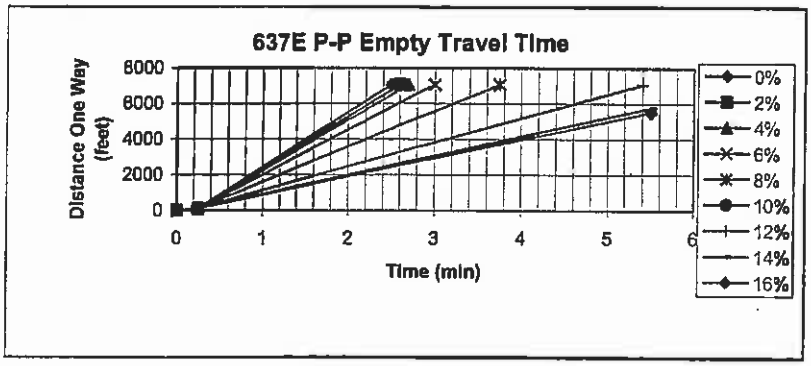
Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	2.0
Empty Travel Time (from chart)	1.6

Quantity of Material to be Moved

Length (ft)	41,344
Width (ft)	100
Total (cy)	244,999





Cycle Time = 1.0 (Load Time) + 2.0 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.6 (Empty Trip Time) = **5.2 min**

Cycles/Hour = 60 min/hr / 5.2 (Cycle Time) = **12 cycles/hr**

Hourly Production = 31 (Adjusted Load (cy)) x 11.54 (Cycles/Hour) = **358 cy/hr**

Hours Required = 244,999 (Volume) / 358 (Hourly Production) x 1.371 (Work Schedule Factor) = **939 hrs**

Reference: Cat Handbook, Ed. 28

Table:	24-5-25
Mine Area:	Black Mesa Permanent Roads
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Black Mesa Mine permanent roads

Revegetation Area

Area (acre)	95
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 95 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$117,785**

Reseeding Costs = 95 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$38,534**

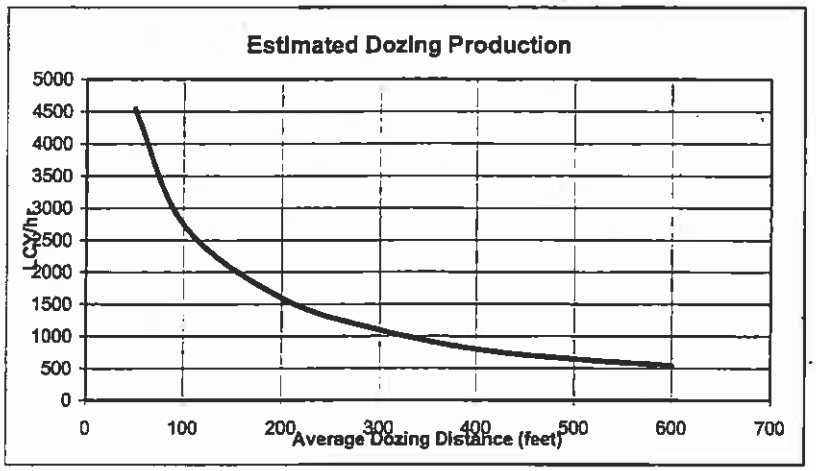
References: Table 24-1-3

Table:	24-5-26
Mine Area:	Black Mesa Primary Roads
Project:	Culvert Removal
Task:	Culvert Removal/Disposal
Equipment:	D11R Dozer

Earthmoving Activity:
Remove and dispose of culvert embankment material and culverts.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use	
Average dozing distance (feet)	300
Hourly production (from chart)	1100
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82
Productivity Adjustment Factors	
Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(I.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes
Quantity of Material to be Moved	
Total (cy)	213,080



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,100 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **676.5 cy/hr**

Hours Required = 213,080 (Total (cy) Volume to be Moved) / 676.5 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **432 Hours**

Culvert (ft)	5040
Culvert Disposal Cost (at $0.23/cf)	$14,014

Note: Quantity of material and culvert are 40% of total for Black Mesa portion of the cost.

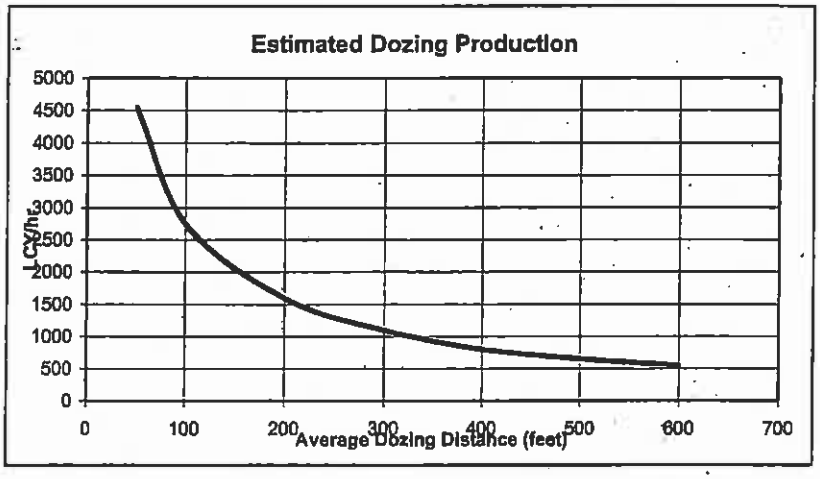
References: Cat Handbook, Ed. 28

Table:	24-5-27
Mine Area:	Black Mesa Primary Roads
Project:	Surfacing Removal
Task:	Surfacing Removal/Disposal
Equipment:	D11R Dozer

Earthmoving Activity:
Push one foot of gravel/scoria off the side of the road for burial

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use	
Average dozing distance (feet)	80
Hourly production (from chart)	3500
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82
Productivity Adjustment Factors	
Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	no
Hard to drift; (.8)	yes
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes
Quantity of Material to be Moved	
Length (ft)	86,643
Width (ft)	80
Total (cy)	256,719



Productivity Adjustment Factor = 0.75 (Operating Factor) x 0.8 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.49**

Net Hourly Production = 3,500 (Normal Hourly Production (see graph above)) x 0.49 (Productivity Adjustment Factor) = **1722 cy/hr**

Hours Required = 256,719 (Total (cy) Volume to be Moved) / 1722 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **204 Hours**

References: Cat Handbook, Ed. 28

Table:	24-5-28
Mine Area:	Black Mesa Primary Roads
Project:	Surface Ripping
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 3' of subbase to aid in vegetation establishment.

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

Length (ft)	86,643
Width (ft)	80
Total (cy)	770,157

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = 2.8 min/pass

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = 21.8 pass/hr

Volume cut per pass = 3.00 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **213 bank cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = 4655 hours

Hours Required = 770,157 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) = **227 hours**

Reference: Cat Handbook, Ed. 28, Table 24-2-9.

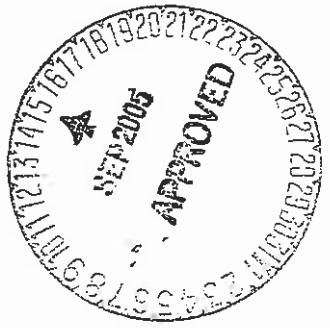


Table:	24-5-29
Mine Area:	Black Mesa Primary Roads
Project:	Grade Ripped Areas
Task:	Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grade the cut and fills to blend into surrounding topography and to drain and bury road surface material a minimum of 3'.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

Length (ft)	86,643
Width (ft)	200
Total (acres)	398

Hours Required	=	398 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	=	4365	Hours

Note: Production rate based on PWCC experience.

Table:	24-5-30
Mine Area:	Black Mesa Primary Roads
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place 1.6' topsoil to cover graded area.

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

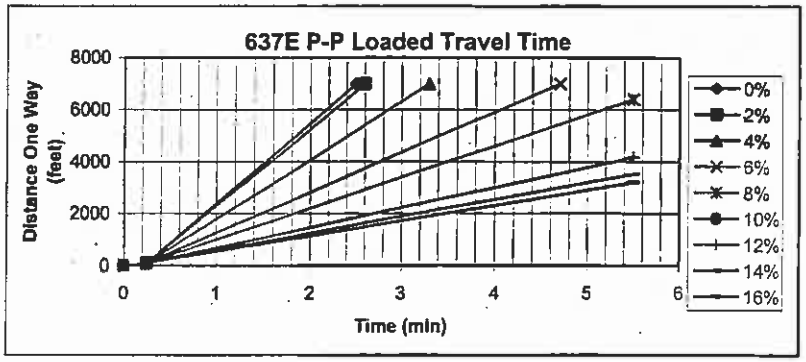
Loaded Distance (ft)	3000
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	3000
Empty Grade (%)	0
Empty Effective Grade (%)	5

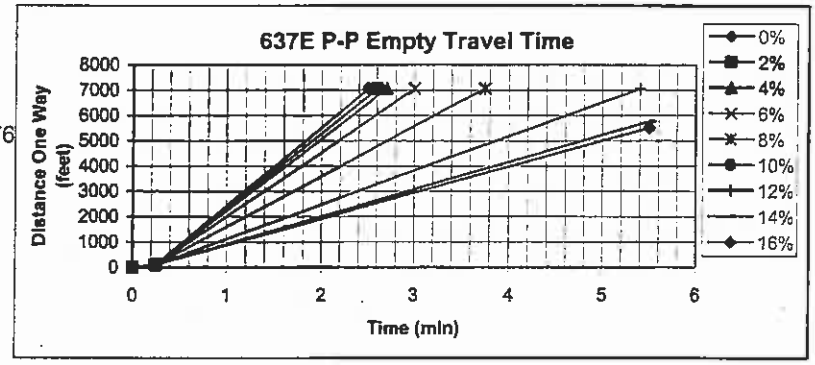
Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	2.0
Empty Travel Time (from chart)	1.5

Quantity of Material to be Moved

Length (ft)	86,643
Width (ft)	200
Total (cy)	1,026,876





Cycle Time = 1.0 (Load Time) + 2.0 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.5 (Empty Trip Time) = **5.1 min**

Cycles/Hour = 60 (min/hr) / 5.1 (Cycle Time) = **12 cycles/hr**

Hourly Production = 31 (Adjusted Load (cy)) x 11.76 (Cycles/Hour) = **365 cy/hr**

Hours Required = 1,026,876 (Volume) / 365 (Hourly Production) x 1.371 (Work Schedule Factor) = **3861 hrs**

Reference: Cat Handbook, Ed. 28

Table:	24-5-31
Mine Area:	Black Mesa Primary Roads
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Black Mesa Mine primary roads

Revegetation Area

Area (acre)	398
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 398 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$493,680**

Reseeding Costs = 398 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$161,510**

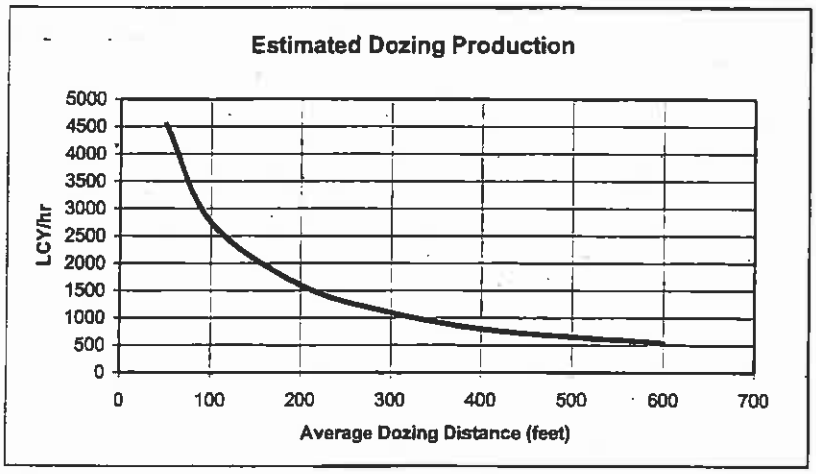
References: Table 24-1-3

Table:	24-5-32
Mine Area:	Black Mesa Ancillary Roads
Project:	Culvert Removal
Task:	Culvert Removal/Disposal
Equipment:	D11R Dozer

Earthmoving Activity:
Remove and dispose of culvert embankment material and culverts.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use	
Average dozing distance (feet)	300
Hourly production (from chart)	1100
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82
Productivity Adjustment Factors	
Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes
Quantity of Material to be Moved	
182,647	cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,100 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **676.5 cy/hr**

Hours Required = 182,647 (Total Volume to be Moved) / 676.5 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **370 Hours**

Culvert (ft)	4640
Culvert Disposal Cost (at $0.23/cf)	$13,814

Note: Quantity of material and culvert are 40% of total for Black Mesa portion of the cost.

References: Cat Handbook, Ed. 28

Table:	24-5-33
Mine Area:	Black Mesa Ancillary Roads
Project:	Surfacing Removal
Task:	Surfacing Removal/Disposal
Equipment:	D11R Dozer

Earthmoving Activity:
Push one foot of gravel/scoria off the side of the road for burial

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use

Average dozing distance (feet)	25
Hourly production (from chart)	5000
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	no
Hard to drift; (.8)	yes
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

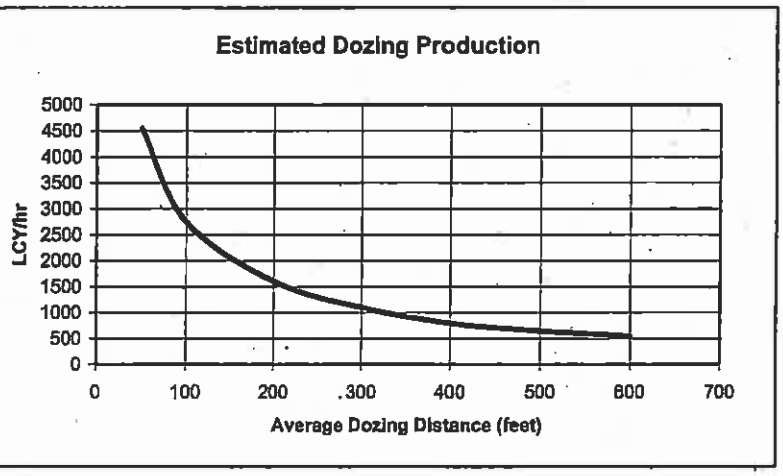
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved

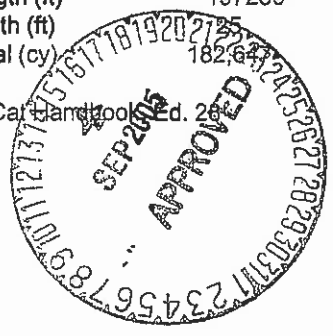
Length (ft)	197259
Width (ft)	
Total (cy)	182,647



Productivity Adjustment Factor = 0.75 (Operating Factor) x 0.8 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.49**

Net Hourly Production = 5,000 (Normal Hourly Production (see graph above)) x 0.49 (Productivity Adjustment Factor) = **2460 cy/hr**

Hours Required = 182,647 (Total (cy) Volume to be Moved) / 2460 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **102 Hours**



References: Cat Handbook, Ed. 26

Table:	24-5-34
Mine Area:	Black Mesa Ancillary Roads
Project:	Surface Ripping
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 3' of subbase to aid in vegetation establishment.

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

Length (ft)	197,259
Width (ft)	25
Total (cy)	547942

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = 2.8 min/pass

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = 21.8 pass/hr

Volume cut per pass = 3.00 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **213 bank cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = 4655 hours

Hours Required = 547,942 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) = **161 hours**

Reference: Cat Handbook, Ed. 28

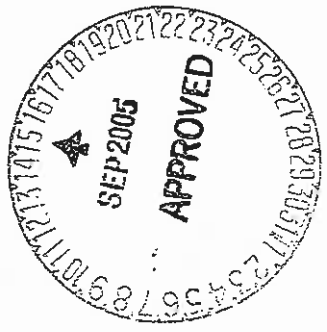


Table:	24-5-35
Mine Area:	Black Mesa Ancillary Roads
Project:	Grade Ripped Areas
Task:	Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grade the cut and fills to blend into surrounding topography and to drain and bury road surface material a minimum of 3'.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

Length (ft)	197,259
Width (ft)	80
Total (acres)	362

Hours Required	=	362 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	=	3975 Hours

Note: Production rate based on PWCC experience.

Table:	24-5-36
Mine Area:	Black Mesa Ancillary Roads
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place 1.6' topsoil to cover graded area.

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

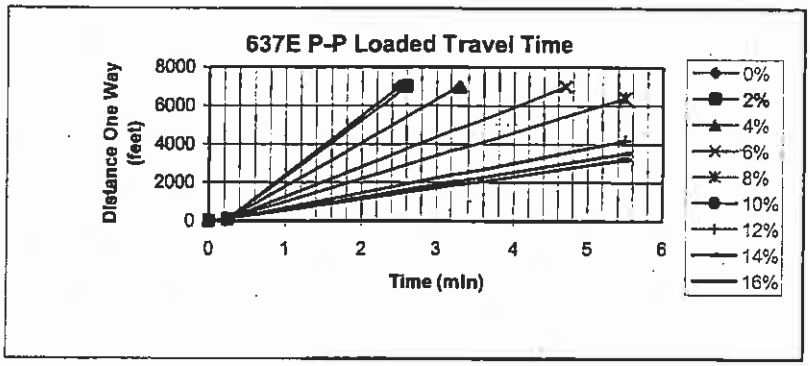
Loaded Distance (ft)	3000
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	3000
Empty Grade (%)	0
Empty Effective Grade (%)	5

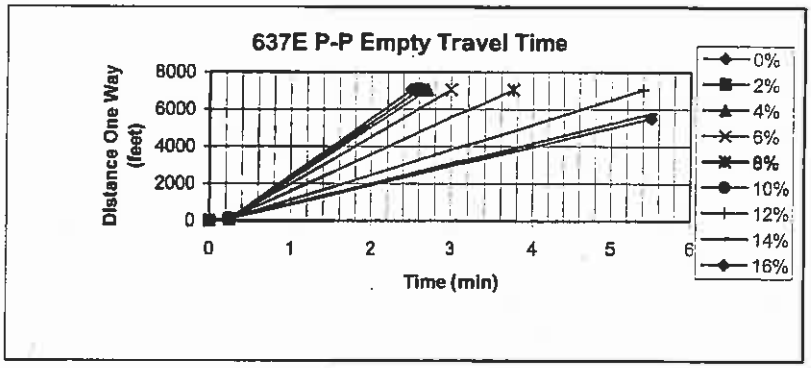
Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	2.0
Empty Travel Time (from chart)	1.2

Quantity of Material to be Moved

Length (ft)	197,259
Width (ft)	80
Total (cy)	935,154





Cycle Time = 1.0 (Load Time) + 2.0 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.2 (Empty Trip Time) = **4.8 min**

Cycles/Hour = 60 (min/hr) / 4.8 (Cycle Time) = **13 cycles/hr**

Hourly Production = 31 (Adjusted Load (cy)) x 12.50 (Cycles/Hour) = **388 cy/hr**

Hours Required = 935,154 (Volume) / 388 (Hourly Production) x 1.371 (Work Schedule Factor) = **3310 hrs**

Reference: Cat Handbook, Ed. 28

Table:	24-5-37
Mine Area:	Black Mesa Ancillary Roads
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Black Mesa Mine ancillary roads

Revegetation Area

Area (acre)	362
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 362 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$449,584**

Reseeding Costs = 362 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$147,084**

References: Table 24-1-3

Table:	24-5-38	Page 1
Mine Area:	Black Mesa Water Storage and Sedimentation Ponds	
Project:	Clean Out Sediment	
Task:	Sediment Removal	
Equipment:	D11R Dozer	

Earthmoving Activity:
Sediment removal/disposal (65%) from pond areas.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use

Average dozing distance (feet)	200
Hourly production (from chart)	1600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

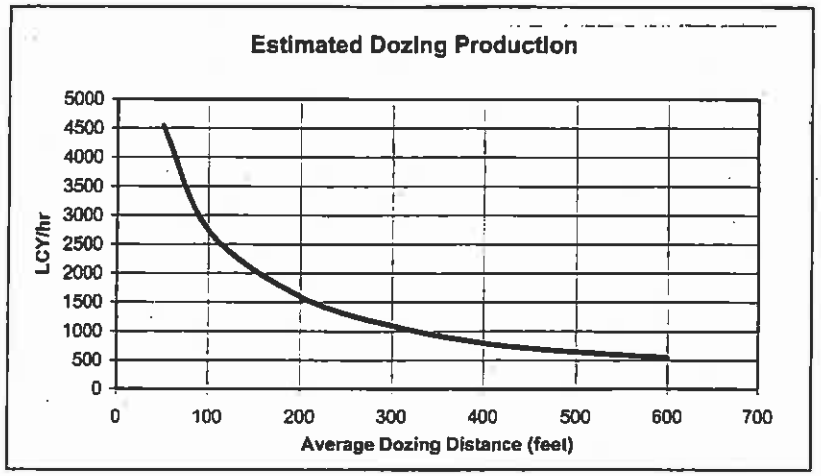
(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved

256,052	cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **984 cy/hr**

Hours Required = 256,052 (Volume to be Moved) / 984 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **357 Hours**

Notes:
1. Quantity of material to be moved based on 65% of total sediment, 25% is assumed in the incised portion of the pond, not requiring removal and 10% is cleaned out with a dragline.
2. Quantity of material is based on 40% (Black Mesa portion of cost) of water storage and sedimentation ponds.

References: Table 24-2-10 and Cat Handbook, Ed. 28

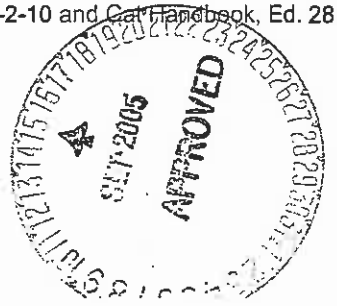


Table:	24-5-38 (cont.) Page 2
Mine Area:	Black Mesa Water Storage and Sedimentation Ponds
Project:	Clean Out Sediment
Task:	Sediment Removal
Equipment:	LS-208H Linkbelt

Earthmoving Activity:
Sediment removal/disposal (10%) from pond areas with a dragline.

Characterization of Dragline Used (type, size, etc):
LS-208H Linkbelt with dragline, bucket capacity (yd^3) = 2

Swing depth and angle correction[3] 0.9

Productivity Adjustment Factors
Operator Factor
Is operator excellent (1) no
Is operator average (.75) yes
Is operator poor (.6) no

Quantity of Material to be Moved[1]
39,393 cy

Productivity Adjustment Factor = 0.75 (Operating Factor) x 0.9 (Swing Factor) = **0.68**

Net Hourly Production = 145 (Normal Hourly Production) x 0.68 (Productivity Adjustment Factor) = **98 cy/hr**

Hours Required = 39,393 (Volume to be Moved) / 98 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **552 Hours**

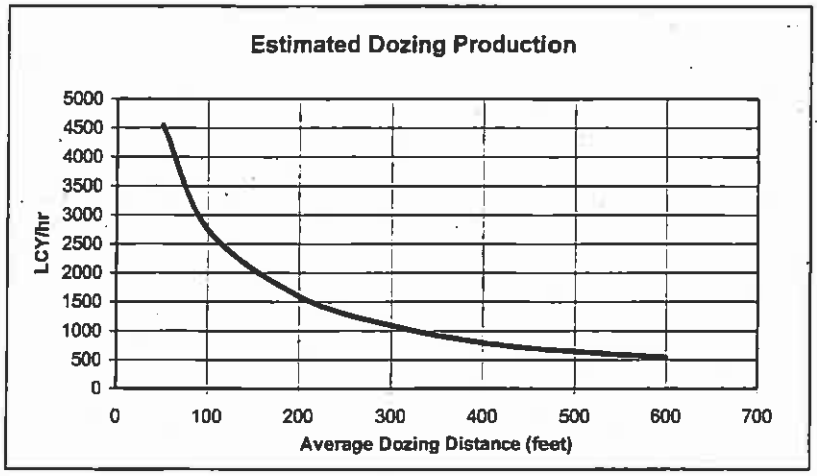
Notes: 1. Quantity of material to be moved based on 65% of total sediment, 25% is assumed in the inclsed portion of the pond, not requiring removal and 10% is cleaned out with a dragline.
2. Quantity of material is based on 40% (Black Mesa portion of cost) of water storage and sedimentation ponds.
3. Production rate based on Peabody experience.
4. Optimum depth of cut is 11.8 feet.

Reference: Table 24-2-10

Table:	24-5-39
Mine Area:	Black Mesa Water Storage and Sedimentation Ponds
Project:	Embankment Removal
Task:	Grade Embankment into Basin
Equipment:	D11R Dozer

Earthmoving Activity:
Blade embankment material into surrounding drainage, pond area or sides of drainage.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes



Description of Dozer Use

Average dozing distance (feet)	200
Hourly production (from chart)	1600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved
587,408 cy

Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **984 cy/hr**

Hours Required = 587,408 (Total Volume to be Moved) / 984 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **819 Hours**

References: Table 24-2-10 and Cat Handbook, Ed. 28

Table:	24-5-40
Mine Area:	Black Mesa Water Storage and Sedimentation Ponds
Project:	Grade Pond Areas
Task:	Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grade the cut and fills to blend into surrounding topography and to drain and bury road surface material a minimum of 3'.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded
222 acres

Hours Required	=	222 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 = Work Schedule Factor	2430 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-10

Table:	24-5-41
Mine Area:	Black Mesa Water Storage and Sedimentation Ponds
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place 1.6' topsoil to disturbed pond areas.

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

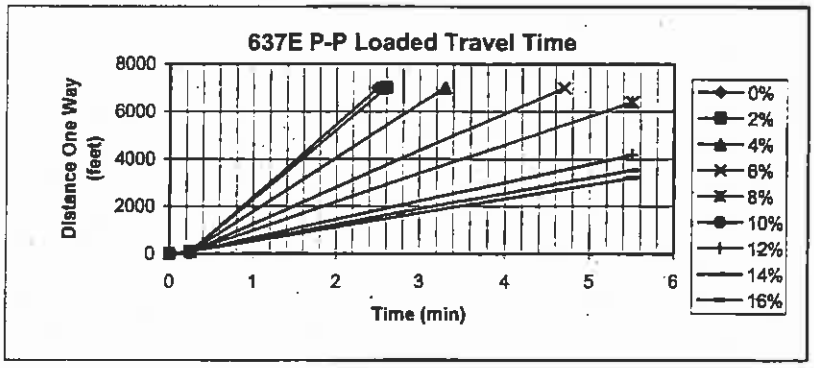
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

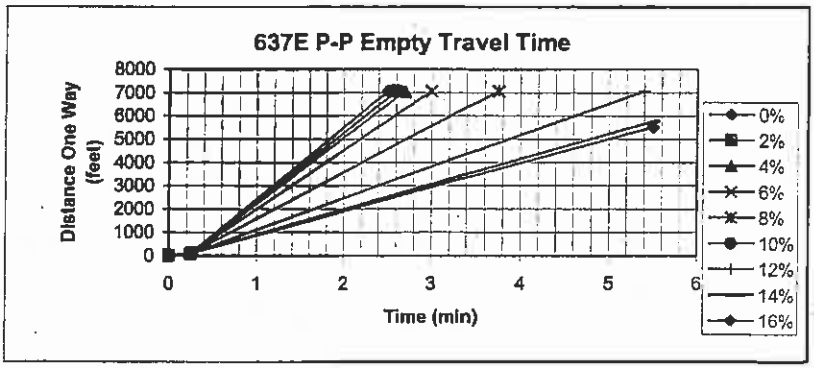
Loaded Distance (ft)	3000
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	3000
Empty Grade (%)	0
Empty Effective Grade (%)	5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	2.0
Empty Travel Time (from chart)	1.5

Quantity of Material to be Moved
571,817 cy





Cycle Time = 1.0 (Load Time) + 2.0 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.5 (Empty Trip Time) = **5.1 min**

Cycles/Hour = 60 (min/hr) / 5.1 (Cycle Time) = **12 cycles/hr**

Hourly Production = 31 (Adjusted Load (cy)) x 11.76 (Cycles/Hour) = **365 cy/hr**

Hours Required = 571,817 (Volume) / 365 (Hourly Production) x 1.371 (Work Schedule Factor) = **2150 hrs**

References: Table 24-2-10 and Cat Handbook, Ed. 28

Table:	24-5-42
Mine Area:	Black Mesa Water Storage and Sedimentation Ponds
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Black Mesa Mine regraded sedimentation and water storage ponds.

Revegetation Area

Area (acre)	222
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 222 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$274,906**

Reseeding Costs = 222 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$89,937**

References: Table 24-1-3

Table: 24-5-43 Page 1
Mine Area: Black Mesa Environmental Monitoring Sites
Project: Off Permit Environmental Monitoring Sites
Task: Concrete Removal/Disposal

Environmental Monitoring Sites

Approximately 16 off-permit environmental monitoring sites will exist in 2001. The sites vary in size and disturbance area. Ten of these sites are minor sites consisting only of a single riser (e.g., alluvial monitoring well, precipitation gage, or crest gage). The remaining six sites are slightly larger and may include concrete flumes, steel sediment sample structures, or overhead steel catwalk structures, etc. for stormwater sampling. In order to be conservative, Peabody included enough reclamation liability costs to remove the monitoring structures, grade and blend the site, assuming the entire bonding area is disturbed, and reclaim and revegetate the site. Following is a list of monitoring sites and estimated bonding area:

Site ID	Bond Area (acres)		Site ID	Bond Area (acres)	
ALUV76R	1		CG25	1	
ALUV77	1		CG34	1	
ALUV94	1		SW16	3	
ALUV95	1		SW18	3	
ALUV102	1		SW25	3	
ARG152	1		SW26	3	
ARG153	1		SW34	3	
ARG154	1		SW155	3	
	8	acres		20	acres

Total Reclamation Area = 28 acres

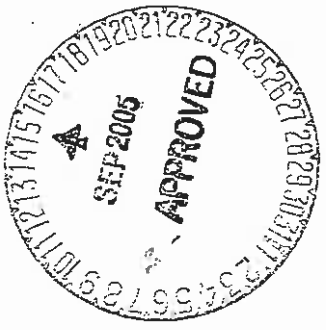


Table: 24-5-43 (cont.) Page 2
Mine Area: Black Mesa Environmental Monitoring Sites
Project: Off Permit Environmental Monitoring Sites
Task: Site Reclamation
Equipment Concrete Removal/Disposal

Description	Quantity (ft^3)	Unit Cost	No. of Sites	Total
Demolish steel and concrete at six SW sites	18000	0.17	6	$18,360
Concrete/materials to grout alluvial wells (minor sites)	1	50	10	$500
Laborer (minor sites)	2	52.56	10	$1,051
Pickup Truck (minor sites)	1	32.11	10	$321
		Total Cost =		$20,232
		40% of Total Cost =		$ 8,093

Estimator Notes
1. Volume dimensions are 300' x 10' x 6'.
2. Assume 4 hours at each site.
3. Assume pickup truck is $7.23 per hour.
4. Assume 60% of total cost for Kayenta Mine portion of cost.

Table:	24-5-44 Page 1
Mine Area:	Black Mesa Environmental Monitoring Sites
Project:	Grade Reclaimed Area
Task:	Site Reclamation
Equipment:	D11R Dozer

Earthmoving Activity

Grade the cut and fills to blend into surrounding topography and to drain (SW sites).

Characterization of Dozer Used (type, size, etc)

D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

Total (acres) 7

Hours Required	=	7 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	=	79 Hours

Notes: Production rate based on PWCC experience.
Acres based on 40% of total acres for Black Mesa portion of the cost.

References: Cat Handbook, Ed. 28

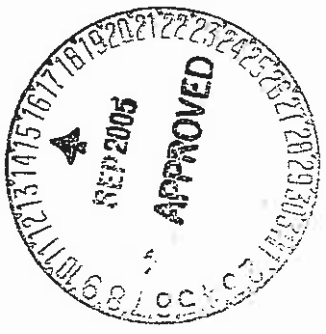


Table: 24-5-44 (cont.) Page 2
Mine Area: Black Mesa Environmental Monitoring Sites
Project: Revegetation
Task: Site Reclamation
Equipment: Miscellaneous

Revegetation Area Description
Black Mesa Mine percentage of revegetating the six "SW" sites

Revegetation Area

Area (acre)	11
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 11 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$13,899**

Reseeding Costs = 11 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$4,547**

Note: Revegetation area based on 40% of total area for Black Mesa portion of cost.

References: Table 24-1-3

Table:	24-5-45
Mine Area:	Black Mesa Monitoring Wells
Project:	Reclaim Monitoring Wells
Task:	Well/Site Reclamation
Equipment:	Miscellaneous

Environmental Monitoring Water Wells

Approximately 95 monitoring water wells will exist in 2001. Well abandonment procedures to be used include:

1) Cutting the casing off a foot below ground level or even with the ground surface;
2) Filling the well bore from the bottom to within 20 feet of the surface with cement;
3) Grouting the top 20 feet of the well bore with cement;
4) Removing all locking well covers and protective fences;
5) Scarifying and seeding the ground surface in the immediate vicinity of the well.

Abandonment cost per well = $1,000 per well

Reclamation Cost	=	95 Number of Wells	x	$1,000 Cost per Well	x	0.4 40% of Total	=	$38,000

Note: Reclamation Cost based on 40% of total for Black Mesa portion of the cost.

Table: 24-5-50
Mine Area: Black Mesa Draglines
Project: Dragline Removal
Task: Disassemble and Remove Draglines
Equipment: Miscellaneous

Description	Quantity (units))	Unit Cost	Removal Cost
7800 Dragline	1	$100,000.00	$100,000
8750 Dragline	1	$200,000.00	$200,000
		Total	$300,000

Note: Cost based on PWCC experience.

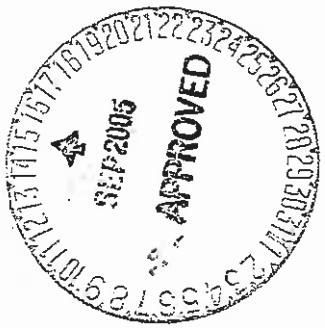


Table: 24-5-01 Page 1
Mine Area: Kayenta
Project: Facilities Demolition
Task: Demolish Facilities
Equipment: Miscellaneous

KAYENTA MINE
FACILITIES DEMOLITION ESTIMATE
7/31/04

Structure Material	Demolition Unit Cost
Steel (s)	0.27
Concrete(c)	0.36

Facilities Name	Structure Material	Facility Length (ft)	Width (ft)	Height (ft)	Volume (cu ft)	Unit Cost ($)	Total Cost ($)
N-8 Facilities:							
Coal Lab.	s	45	30	14	18,900	0.27	$ 5,103
Pumphouse	s	30	20	11	6,600	0.27	$ 1,782
Pumphouse	s	25	20	12	6,000	0.27	$ 1,620
Shop	s	224	90	26	524,160	0.27	$ 141,523
Shop Addition	s	52	24	11	13,728	0.27	$ 3,707
Shop Addition/ O	s	52	24	13	16,224	0.27	$ 4,380
Tire Repair Shed	s	50	30	18	27,000	0.27	$ 7,290
Water Tank (Dia	s	92	-	40	265,904	0.27	$ 71,794
N-14 Facilities:							
CDK Contractor E	s	60	35	16	33,600	0.27	$ 9,072
Explosives Buildi	c	50	35	11	19,250	0.27	$ 5,198
Laboratory	s	60	28	10	16,800	0.27	$ 4,536
MC Building	s	20	10	10	2,000	0.27	$ 540
Pumphouse	s	12	12	9	1,296	0.27	$ 350
Water Tank (Dia	s	40	-	32	40,212	0.27	$ 10,857
J-28 Facilities:							
Bathhouse	s	100	80	16	128,000	0.27	$ 34,560
Bucket Shed	s	126	100	37	466,200	0.27	$ 125,874
Electric Shop	s	69	49	26	87,906	0.27	$ 23,735
Explosive Storag	c	33	16	37	19,536	0.27	$ 5,275
Mine Office	s	80	30	10	24,000	0.27	$ 6,480
Pickup Wash Pu	s	21	18	14	5,292	0.27	$ 1,429
Tire Repair Shop	s	90	20	12	21,600	0.27	$ 5,832
Tire Repair Shop	s	40	35	18	25,200	0.27	$ 6,804
Truck Shop	s	240	100	32	768,000	0.27	$ 207,360
Truck Shop Addi	s	40	35	32	44,800	0.27	$ 12,096
Truck Shop Addi	s	30	16	16	7,680	0.27	$ 2,074
Truck Shop Addi	s	25	20	16	8,000	0.27	$ 2,160
Truck Wash Pum	s	20	20	8	3,200	0.27	$ 864
Water Tank (Dia	s	145	-	40	660,520	0.27	$ 178,340
Welding Shop	s	100	100	30	300,000	0.27	$ 81,000
Coal Handling Facilities:							
Loadout & Silos:							
4-Silos (Diamete	c	46	-	200	1,329,525	0.36	$ 478,629
Large Building or	s	50	50	40	100,000	0.27	$ 27,000
MCC Building	c	24	16	10	3,840	0.36	$ 1,382
MCC Buidling on	c	16	9	10	1,440	0.36	$ 518

Table: 24-5-01 (cont.) Page 2
Mine Area: Kayenta
Project: Facilities Demolition
Task: Demolish Facilities
Equipment: Miscellaneous

Facilities Name	Structure Material	Facility Length (ft)	Width (ft)	Height (ft)	Volume (cu ft)	Unit Cost ($)	Total Cost ($)
N-8 Facilities:							
Analyzer Building	s	21	12	29	7,308	0.27	$ 1,973
Conveyor Control Building	s	30	18	10	5,400	0.27	$ 1,458
5-MCC Buildings	c	20	20	10	20,000	0.36	$ 7,200
Reclaim Hopper No. 1	s	220	20	25	110,000	0.27	$ 29,700
Reclaim Hopper No. 2	s	40	20	25	20,000	0.27	$ 5,400
Reclaim Hopper No. 3	s	20	20	20	8,000	0.27	$ 2,160
7-Scales	s	10	10	10	7,000	0.27	$ 1,890
Screening Control Building	s	50	24	12	14,400	0.27	$ 3,888
Screening Tower	s	38	38	82	118,408	0.27	$ 31,970
Truck Dump	s	60	60	42	151,200	0.27	$ 40,824
Weigh Bin	s	22	20	46	20,240	0.27	$ 5,465
J-28 Facilities:							
Analyzer Building	s	30	16	40	19,200	0.27	$ 5,184
Belt Take Up	s	29	21	33	20,097	0.27	$ 5,426
Crusher Tower	s	100	30	50	150,000	0.27	$ 40,500
Dust Control Building #1 & #2	s	30	20	13	15,600	0.27	$ 4,212
Dust Control Building #3	s	20	12	9	2,160	0.27	$ 583
Dust Control Building #4	s	16	12	9	1,728	0.27	$ 467
Filter House	s	40	30	15	18,000	0.27	$ 4,860
Laboratory	s	60	30	12	21,600	0.27	$ 5,832
Live Storage Dome (Diameter)	s	180	-	-	292,573	0.27	$ 78,995
4-MCC Buildings	c	30	20	10	24,000	0.36	$ 8,640
Reclaim Hopper	s	30	26	37	28,860	0.27	$ 7,792
Sample Tower	s	30	20	40	24,000	0.27	$ 6,480
4-Scales	s	10	10	10	4,000	0.27	$ 1,080
Truck Dump	s	70	63	100	441,000	0.27	$ 119,070
Conveyor 1N and 1S		-	-	-	-		
Transfer Stations:							
J-28 Transfer	s	36	27	68	66,096	0.27	$ 17,846
Transfer A	s	43	37	20	31,820	0.27	$ 8,591
Transfer A	s	17	16	20	5,440	0.27	$ 1,469
Transfer B	s	28	16	12	5,376	0.27	$ 1,452
Transfer C	s	50	40	38	76,000	0.27	$ 20,520
Transfer F	s	45	16	35	25,200	0.27	$ 6,804
Transfer 24/25	s	45	16	35	25,200	0.27	$ 6,804
Transfer 24/25	s	10	10	10	1,000	0.27	$ 270
Transfer 23/24	s	20	20	20	8,000	0.27	$ 2,160
Transfer 22/23	s	30	20	11	6,600	0.27	$ 1,782
Transfer 21/22	s	20	20	11	4,400	0.27	$ 1,188
Transfer 20/21	s	24	20	12	5,760	0.27	$ 1,555
Transfer 20	s	20	20	12	4,800	0.27	$ 1,296
Other Facilities:							
J-19 Dragline Repair Building	s	126	100	37	466,200	0.27	$ 125,874

Total for this worksheet left in place from 2004 version in order to preserve links

Total	$1,469,164

Table:	24-5-02
Mine Area:	Kayenta
Project:	Concrete Removal
Task:	Concrete Removal/Disposal
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Remove 8" of concrete from facilities area.

Characterization of Dozer and Ripper Used:
D11R, single shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	0.7
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
9,777	cy

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = 0.67 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **47 bank cy/pass**

Ripping Production = 47 (Volume cut per pass) x 21.8 (Passes per hour) = **1,034 hours**

Hours Required = 9,777 (Volume to be Ripped) / 1,034 (Ripping Production) x 1.371 (Work Schedule Factor) = **13.0 hours**

Concrete Disposal (at $8.20/cy)= $80,169.76

References: Cat Handbook, Ed. 28, Table 24-2-8.

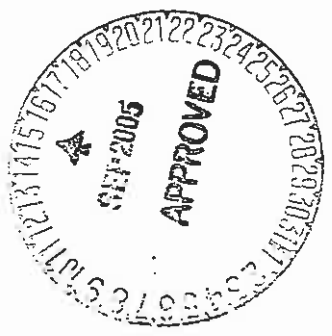


Table:	24-5-03
Mine Area:	Kayenta
Project:	Surfacing Removal
Task:	Surfacing Removal/Disposal
Equipment:	D11R Dozer

Earthmoving Activity:
Push 1' of gravel or scoria off the side of the facilities parking area.
Doze a trench 4' deep to accept surfacing material, then push the 4' of suitable material back over the top

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use

Average dozing distance (feet)	200
Hourly production (from chart)	1,500
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

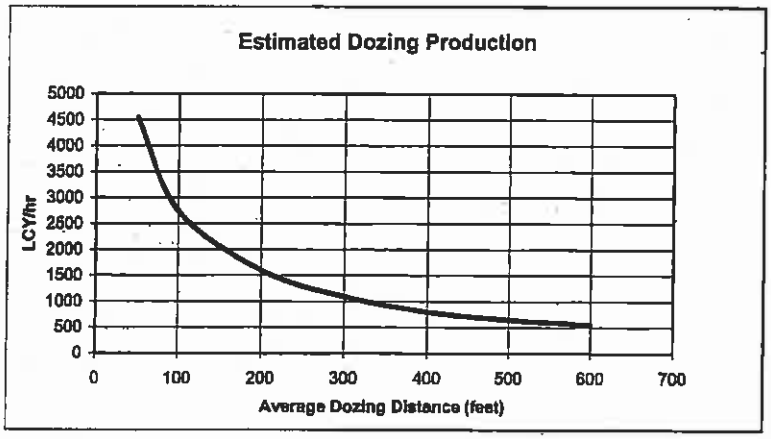
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved
3,647,398 cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = 0.62

Net Hourly Production = 1,500 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = 923 cy/hr

Hours Required = 3,647,398 (Volume to be Moved) / 923 (Net Hourly Production) x 1.371 (Work Schedule Factor) = 5,422 Hours

References: Cat Handbook, Ed. 28, Table 24-2-8

Table:	24-5-04
Mine Area:	Kayenta
Project:	Surface Ripping
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 3' of subbase to aid in vegetation establishment.

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
2,779,544	cy

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = 3.00 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **213 bank cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4,655 hours**

Hours Required = 2,779,544 (Volume to be Ripped) / 4,655 (Ripping Production) x 1.371 (Work Schedule Factor) = **819 hours**

Reference: Cat Handbook, Ed. 28, Table 24-2-8.

Table:	24-5-05
Mine Area:	Kayenta
Project:	Grade Facilities Areas
Task:	Facilities Area Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grading the cut and fills to blend into the surrounding topography to drain, burial of road surface material a minimum of three feet.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use

Average dozing distance (feet)	200
Hourly production (from chart)	1,500
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

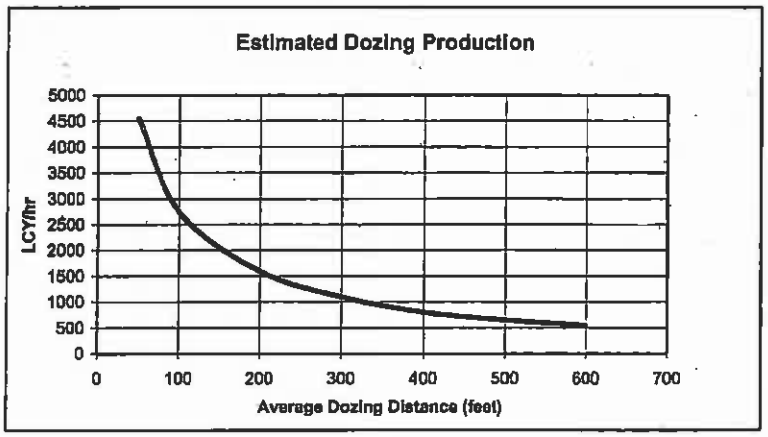
Poor Visibility

(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved
2,779,544 cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,500 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **923 cy/hr**

Hours Required = 2,779,544 (Volume to be Moved) / 923 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **4,132 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-8

Table:	24-5-06
Mine Area:	Kayenta
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity

Haul 4' of material to cover concrete pads and 1.25' of material to cover remaining parking/storage areas.

Characterization of Scraper Used (type, capacity, etc)

637E P-P Scraper - capacity = 31 cy

Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

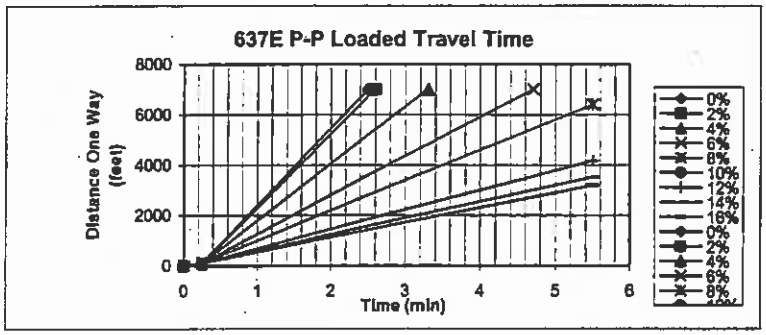
Loaded Distance (ft)	500
Loaded Grade (%)	0
Loaded Effective Grade (%)	3
Empty Distance (ft)	500
Empty Grade (%)	0
Empty Effective Grade (%)	3

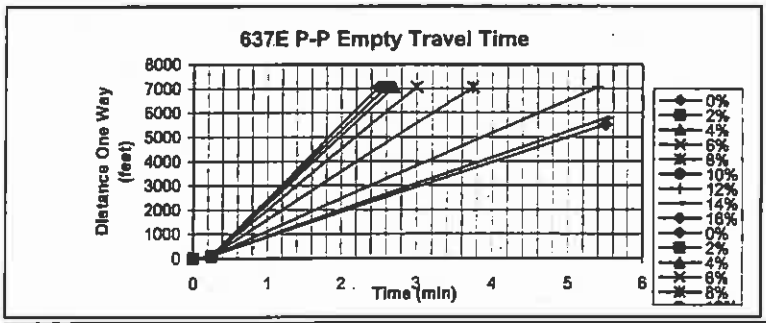
Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.4

Quantity of Material to be Moved

1,198,472 cy





Cycle Time = 1.0 (Load Time) + 0.4 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.4 (Empty Trip Time) = **2.4 min**

Cycles/Hour = 60 min/hr / 2.4 Cycle Time = **25 cycles/hr**

Hourly Production = 31 Adjusted Load (cy) x 25.00 Cycles/Hour = **775 cy/hr**

Hours Required = 1,198,472 Volume / 775 Hourly Production x 1.371 Work Schedule Factor = **2,121 hrs**

Reference: Table 24-2-8, Cat Handbook, Ed. 28

Table:	24-5-07
Mine Area:	Kayenta
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Kayenta Mine major facilities

Revegetation Area	
Area (acre)	963
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 963 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$1,195,335**

Reseeding Costs = 963 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$391,060**

References: Table 24-1-3 and Table 24-2-8

Table: 24-5-08
Mine Area: Kayenta Conveyors
Project: Conveyor Demolition
Task: Demolish Conveyor
Equipment: Miscellaneous

Description	Quantity (ft)	Crew	Unit Cost	Demolition Cost
Conveyor System (steel)	88,166	B-8	$46.12	$4,065,969

Notes:
1. The conveyor system includes the belt, pans, idlers, and supports.
2. The unit cost includes concrete footing removal and disposal.
3. Means B-8 crew removes 90.5 feet of conveyor per day
4. Daily Rate for means B-8 Crew is $4173.60 from RSMeans Site Work & Landscape Cost Data 2004.

Table: 24-5-09
Mine Area: Kayenta Powerlines
Project: Facilities-Powerlines
Task: Remove Powerlines
Equipment: Miscellaneous

Description	Quantity (ft)	Unit Cost	Demolition Cost
Powerline Removal (ft)	201,287	$1.14	$228,680

Assumptions:
1. Means crew R-6 removes 1 mile of powerline per day.
2. Daily rate for crew R-6 is $5998.55 from RSMeans Site Work & Landscape Cost Data 2004.

Table:	24-5-10
Mine Area:	Kayenta Scoria Pits
Project:	Surface Ripping
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 3' of scoria pit prior to grading

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
15,972	cy

Cycle Time = Cut Length (300) / Speed Factor (fpm) (120) + Turn Time (0.25) = **2.8 min/pass**

Passes per hour = 60 min/hr / Cycle Time (2.8) = **21.8 pass/hr**

Volume cut per pass = Tool Penetration (3.00) x Cut Spacing (6.4) x Cut Length (300) / cf/cy (27) = **213 bank cy/pass**

Ripping Production = Volume cut per pass (213) x Passes per hour (21.8) = **4655 hours**

Hours Required = Volume to be Ripped (15,972) / Ripping Production (4655) x Work Schedule Factor (1.371) = **5 hours**

Reference: Cat Handbook, Ed. 28, Table 24-2-9.

Table:	24-5-11
Mine Area:	Kayenta Scoria Pits
Project:	Grade Scoria Pit Area
Task:	Scoria Pit Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grade scoria pit to blend into surrounding area.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use

Average dozing distance (feet)	200
Hourly production (from chart)	1500
Grade (in percent)	-10
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

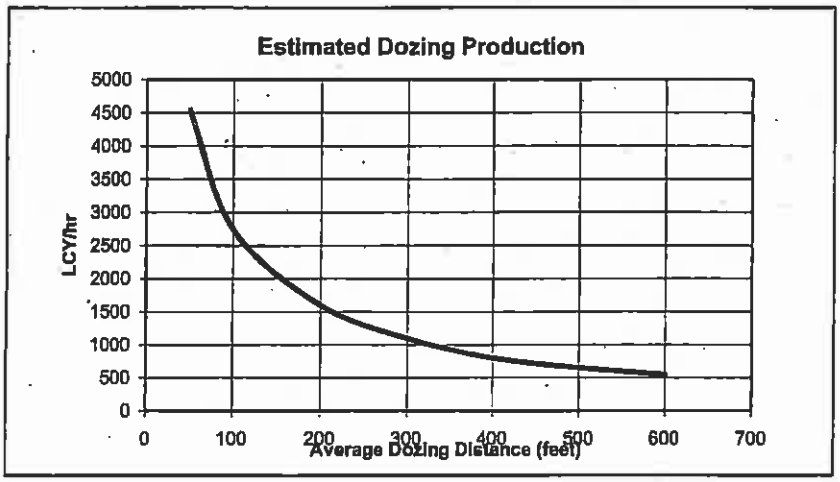
Poor Visibility

(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved
15,972 cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.2 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.74**

Net Hourly Production = 1,500 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = **1107 cy/hr**

Hours Required = 15,972 (Volume to be Moved) / 1107 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **20 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-9

Table:	24-5-12
Mine Area:	Kayenta Scoria Pits
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity
Topsoil disturbance area around scoria pits

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

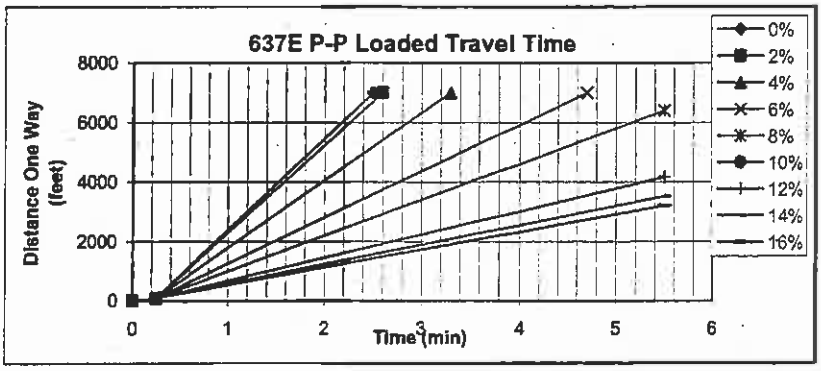
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

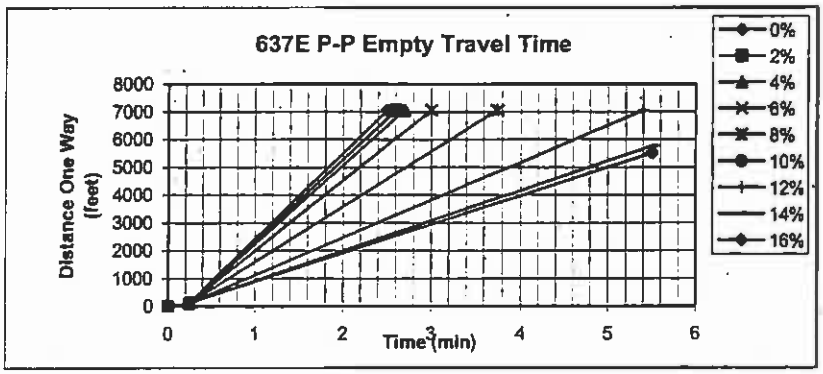
Loaded Distance (ft)	1500
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	1500
Empty Grade (%)	0
Empty Effective Grade (%)	5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	1.0
Empty Travel Time (from chart)	0.8

Quantity of Material to be Moved
8,518 cy





Cycle Time = 1.0 (Load Time) + 1.0 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.8 (Empty Trip Time) = **3.4 min**

Cycles/Hour = 60 min/hr / 3.4 (Cycle Time) = **18 cycles/hr**

Hourly Production = 31 (Adjusted Load (cy)) x 17.65 (Cycles/Hour) = **547 cy/hr**

Hours Required = 8,518 (Volume) / 547 (Hourly Production) x 1.371 (Work Schedule Factor) = **21 hrs**

Reference: Table 24-2-9, Cat Handbook, Ed. 28

Table:	24-5-13
Mine Area:	Kayenta Scoria Pits
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Kayenta Mine regraded scoria pits

Revegetation Area

Area (acre)	3
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 3.3 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$4,095**

Reseeding Costs = 3.3 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$1,340**

References: Table 24-1-3 and Table 24-2-9

Table:	24-5-14
Mine Area:	Kayenta Landfarm Areas
Project:	Landfarm Removal
Task:	Haul Landfarm Material
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul away landfarm material

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

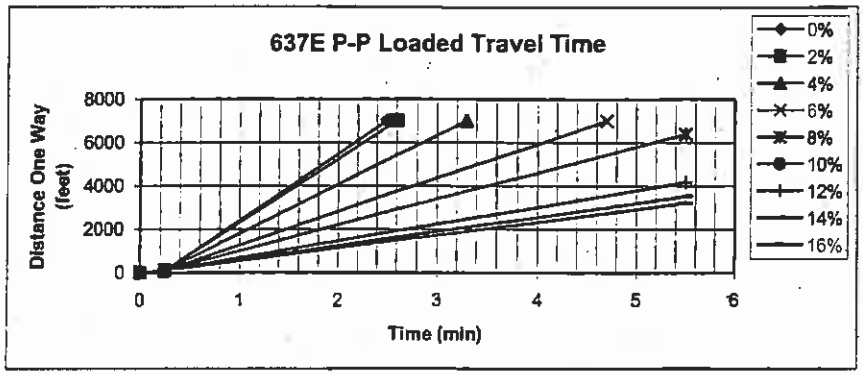
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

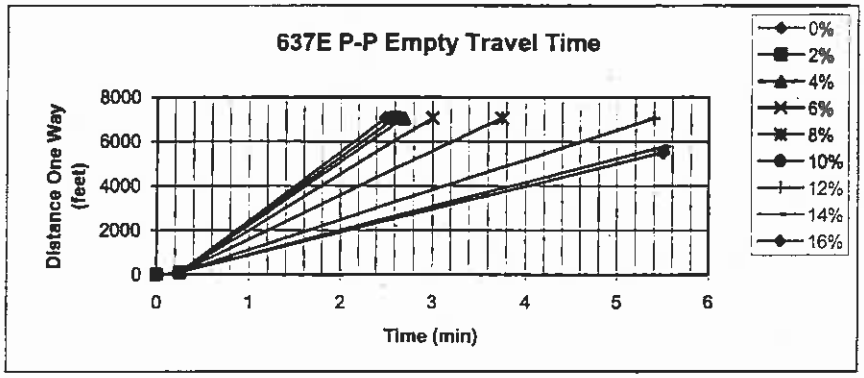
Loaded Distance (ft)	3500
Loaded Grade (%)	4
Loaded Effective Grade (%)	9
Empty Distance (ft)	3500
Empty Grade (%)	-4
Empty Effective Grade (%)	1

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	4.0
Empty Travel Time (from chart)	1.7

Quantity of Material to be Moved
3,000 cy





Cycle Time = 1.0 (Load Time) + 4.0 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.7 (Empty Trip Time) = **7.3 min**

Cycles/Hour = 60 min/hr / 7.3 Cycle Time = **8 cycles/hr**

Hourly Production = 31 Adjusted Load (cy) x 8.22 Cycles/Hour = **255 cy/hr**

Hours Required = 3,000 Volume / 255 Hourly Production x 1.371 Work Schedule Factor = **16 hrs**

Note: Quantity of material based on 60% (Kayenta portion of cost) of 5,000 cy.

Reference: Cat Handbook, Ed. 28

Table:	24-5-15
Mine Area:	Kayenta Landfarm Areas
Project:	Surface Ripping
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 3' of landfarm area prior to grading

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped
12,100 cy

Cycle Time = Cut Length (300) / Speed Factor (fpm) (120) + Turn Time (0.25) = **2.8 min/pass**

Passes per hour = 60 min/hr / Cycle Time (2.8) = **21.8 pass/hr**

Volume cut per pass = Tool Penetration (3.00) x Cut Spacing (6.4) x Cut Length (300) / cf/cy (27) = **213 bank cy/pass**

Ripping Production = Volume cut per pass (213) x Passes per hour (21.8) = **4655 hours**

Hours Required = Volume to be Ripped (12,100) / Ripping Production (4655) x Work Schedule Factor (1.371) = **4 hours**

Note: Quantity of material based on 60% (Kayenta portion of cost) of 1 acre.

Reference: Cat Handbook, Ed. 28, Table 24-2-9.

Table:	24-5-16
Mine Area:	Kayenta Landfarm Areas
Project:	Grade Landfarm Area
Task:	Landfarm Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grade landfarm area to blend into surrounding area.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use

Average dozing distance (feet)	3500
Hourly production (from chart)	1500
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	yes
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

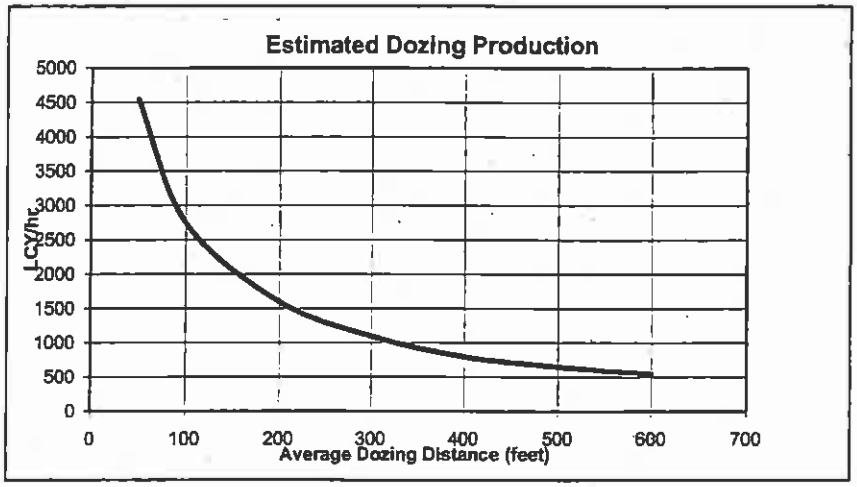
Poor Visibility

(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved
4,033 cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.2 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.74**

Net Hourly Production = 80 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = **59.04 cy/hr**

Hours Required = 4,033 (Volume to be Moved) / 59.04 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **94 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-9

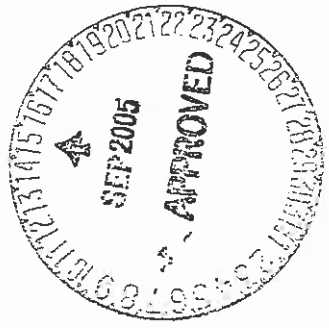


Table:	24-5-17
Mine Area:	Kayenta Landfarm Areas
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity
Topsoil disturbance area around landfarm area

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

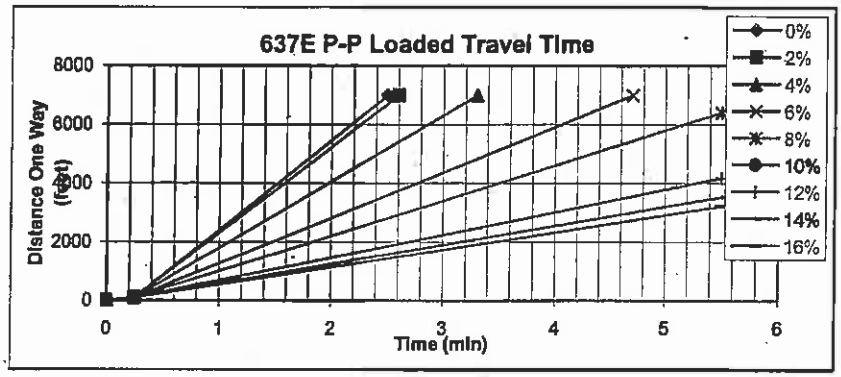
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

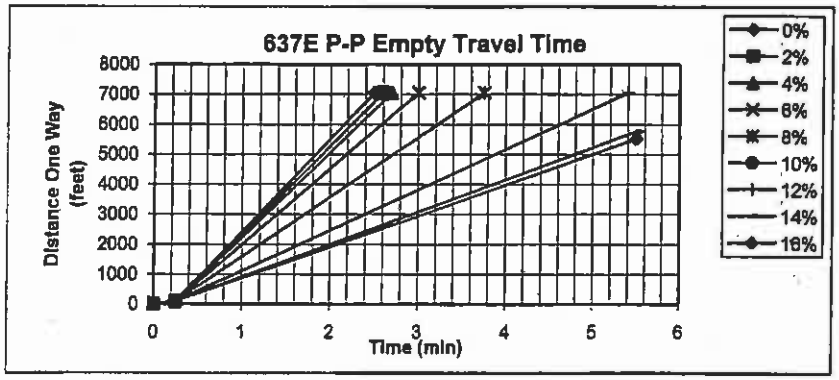
Loaded Distance (ft)	1500
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	1500
Empty Grade (%)	0
Empty Effective Grade (%)	5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.6
Empty Travel Time (from chart)	0.4

Quantity of Material to be Moved
6,050 cy





Cycle Time = 1.0 (Load Time) + 0.6 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.4 (Empty Trip Time) = 2.6 min

Cycles/Hour = 60 (min/hr) / 2.6 (Cycle Time) = 23 cycles/hr

Hourly Production = 31 (Adjusted Load (cy)) x 23.08 (Cycles/Hour) = 715 cy/hr

Hours Required = 6,050 (Volume) / 715 (Hourly Production) x 1.371 (Work Schedule Factor) = 12 hrs

Reference: Table 24-2-9, Cat Handbook, Ed. 28

Table:	24-5-18
Mine Area:	Kayenta Landfarm Areas
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Kayenta Mine landfarm areas

Revegetation Area

Area (acre)	2.5
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 2.5 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$3,103**

Reseeding Costs = 2.5 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$1,015**

References: Table 24-1-3 and Table 24-2-9

Table:	24-5-21
Mine Area:	Kayenta Permanent Roads
Project:	Dozing to Narrow Road
Task:	Doze Roads
Equipment:	D11R Dozer

Earthmoving Activity:
Push 50' of gravel/scoria off the side of the road for burial.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use:

Average dozing distance (feet)	50
Hourly production (from chart)	4,550
Grade (in percent)	0
Grade Correction	1.4
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	yes
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

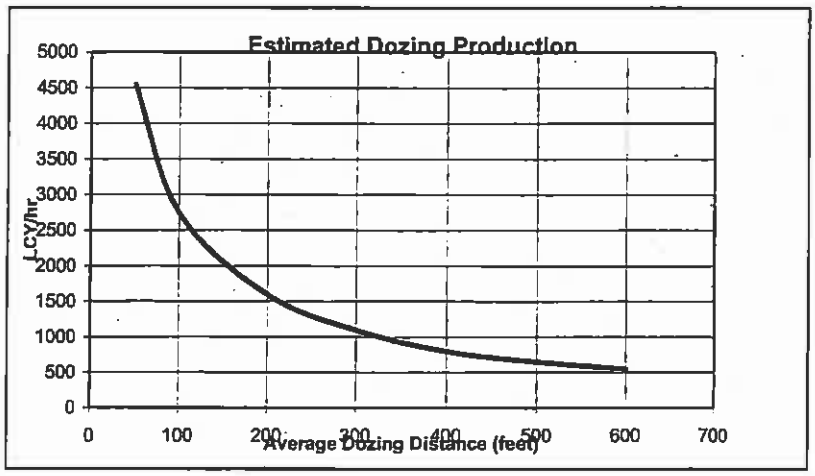
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved

Length (ft)	99,741
Width (ft)	50
Total (cy)	184,705



Productivity Adjustment Factor = 0.75 (Operator Factor) x 0.80 (Material Factor) x 1.4 (Grade Correction) x 0.82 (Density Correction)
x 1.00 (Production Method) x 1.0 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.69**

Net Hourly Production = 4,550 (Normal Hourly Production (see graph above)) x 0.69 (Productivity Adjustment Factor) = **3140 cy/hr**

Hours Required = 184705 (Volume to be Moved) / 3140 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **81 Hours**

Reference: Cat Handbook, Ed. 28

Table:	24-5-22
Mine Area:	Kayenta Permanent Roads
Project:	Surface Ripping to Narrow Road
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 3' of subbase to aid in vegetation establishment.

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
Length (ft)	99,741
Width (ft)	50
Total (cy)	554,116

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = 3.00 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **213 bank cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 hours**

Hours Required = 554,116 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) = **163 hours**

Reference: Cat Handbook, Ed. 28, Table 24-2-9.

Table:	24-5-23
Mine Area:	Kayenta Permanent Roads
Project:	Grade Ripped Areas
Task:	Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grade the cut and fills to blend into surrounding topography and to drain and bury road surface material a minimum of 3'.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

Length (ft)	99,741
Width (ft)	100
Total (acres)	229

Hours Required	=	229 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	=	2512	Hours

Note: Production rate based on PWCC experience.

Table:	24-5-24
Mine Area:	Kayenta Permanent Roads
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place 1.6' topsoil to cover graded area.

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

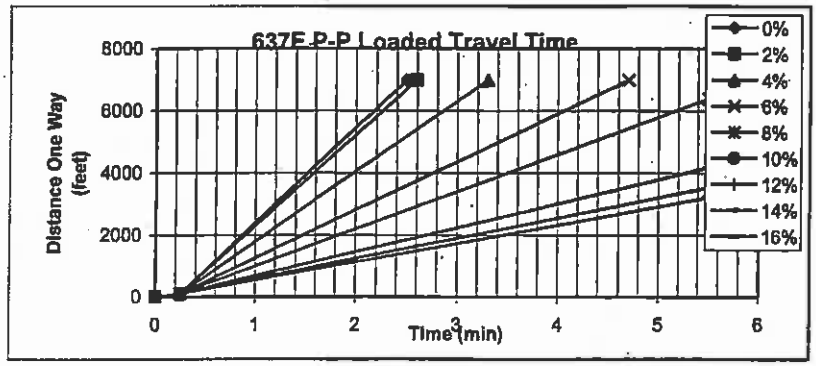
Loaded Distance (ft)	3000
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	3000
Empty Grade (%)	0
Empty Effective Grade (%)	5

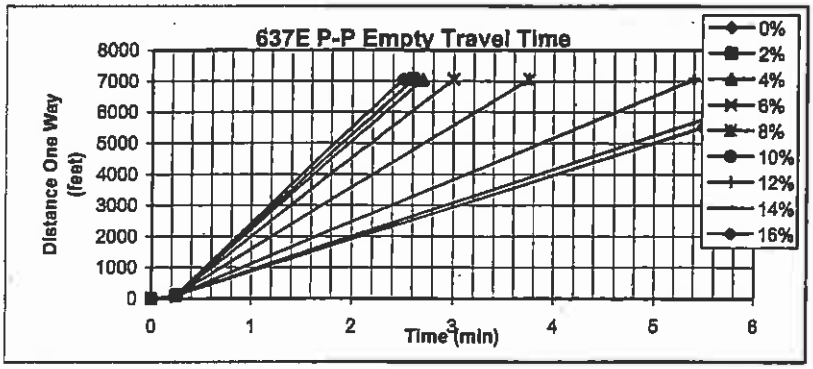
Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	2.0
Empty Travel Time (from chart)	1.6

Quantity of Material to be Moved

Length (ft)	99,741
Width (ft)	100
Total (cy)	591,057





Cycle Time = 1.0 (Load Time) + 2.0 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.6 (Empty Trip Time) = **5.2 min**

Cycles/Hour = 60 min/hr / 5.2 Cycle Time = **12 cycles/hr**

Hourly Production = 31 Adjusted Load (cy) x 11.54 Cycles/Hour = **358 cy/hr**

Hours Required = 591,057 Volume / 358 Hourly Production x 1.371 Work Schedule Factor = **2,266 hrs**

Reference: Cat Handbook, Ed. 28

Table:	24-5-25
Mine Area:	Kayenta Permanent Roads
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Kayenta Mine permanent roads

Revegetation Area

Area (acre)	229
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 229 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$284,156**

Reseeding Costs = 229 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$92,963**

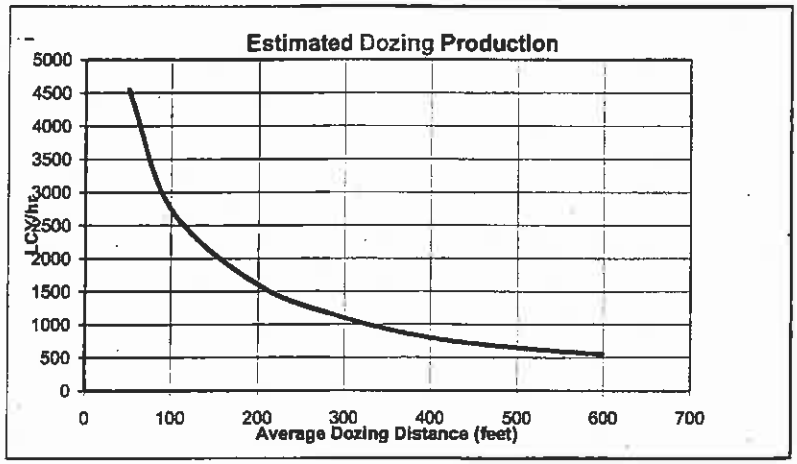
References: Table 24-1-3

Table:	24-5-26
Mine Area:	Kayenta Primary Roads
Project:	Culvert Removal
Task:	Culvert Removal/Disposal
Equipment:	D11R Dozer

Earthmoving Activity:
Remove and dispose of culvert embankment material and culverts.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use	
Average dozing distance (feet)	300
Hourly production (from chart)	1100
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82
Productivity Adjustment Factors	
Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes
Quantity of Material to be Moved	
Total (cy)	817,639



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,100 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **676.5 cy/hr**

Hours Required = 817,639 (Total (cy) Volume to be Moved) / 676.5 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **1,658 Hours**

Culvert (ft)	11170
Culvert Disposal Cost (at $0.23/cf)	$21,020

Note: Quantity of material and culvert are 60% of total for Kayenta portion of the cost.

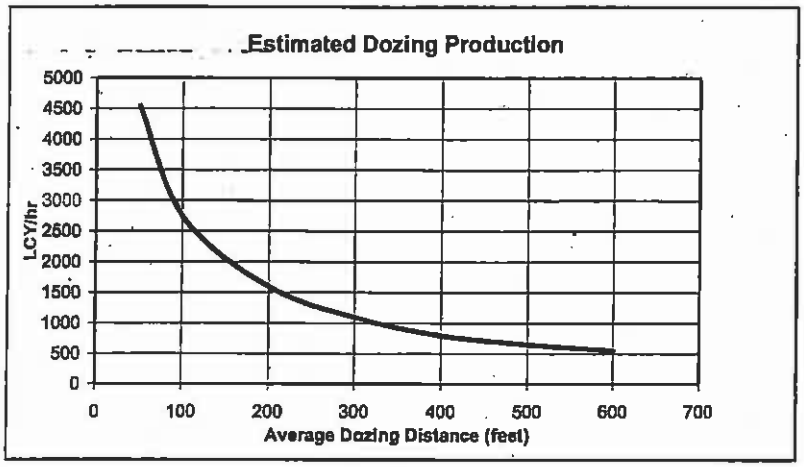
References: Cat Handbook, Ed. 28

Table:	24-5-27
Mine Area:	Kayenta Primary Roads
Project:	Surfacing Removal
Task:	Surfacing Removal/Disposal
Equipment:	D11R Dozer

Earthmoving Activity:
Push one foot of gravel/scoria off the side of the road for burial

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use	
Average dozing distance (feet)	100
Hourly production (from chart)	2750
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82



Productivity Adjustment Factors	
Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	no
Hard to drift; (.8)	yes
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(I.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes

Productivity Adjustment Factor = 0.75 (Operating Factor) x 0.8 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.49**

Net Hourly Production = 2,750 (Normal Hourly Production (see graph above)) x 0.49 (Productivity Adjustment Factor) = **1353 cy/hr**

Hours Required = 817,639 (Total (cy) Volume to be Moved) / 1353 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **829 Hours**

Quantity of Material to be Moved

Length (ft)	275953
Width (ft)	80
Total (cy)	817,639

References: Cat Handbook, Ed. 28

Table:	24-5-28
Mine Area:	Kayenta Primary Roads
Project:	Surface Ripping
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 3' of subbase to aid in vegetation establishment.

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped

Length (ft)	275,953
Width (ft)	80
Total (cy)	2,452,916

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8** min/pass

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8** pass/hr

Volume cut per pass = 3.00 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **213** bank cy/pass

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655** hours

Hours Required = 2,452,916 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) = **723** hours

Reference: Cat Handbook, Ed. 28, Table 24-2-9.

Table:	24-5-29
Mine Area:	Kayenta Primary Roads
Project:	Grade Ripped Areas
Task:	Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grade the cut and fills to blend into surrounding topography and to drain and bury road surface material a minimum of 3'.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

Length (ft)	275,953
Width (ft)	200
Total (acres)	1267

Hours Required	=	1,267 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	=	13901 Hours

Note: Production rate based on PWCC experience.

Table:	24-5-30
Mine Area:	Kayenta Primary Roads
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place 1.6' topsoil to cover graded area.

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

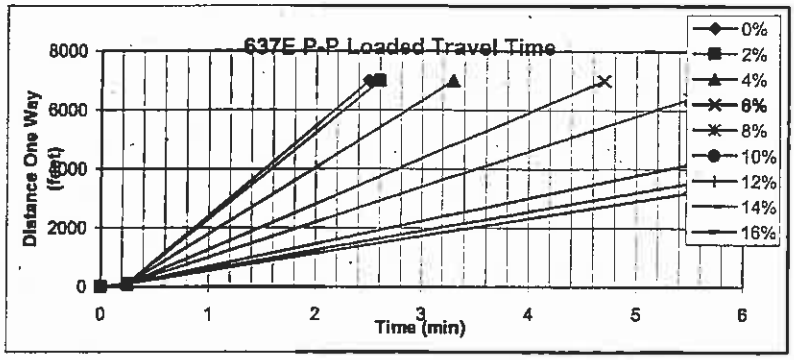
Loaded Distance (ft)	3000
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	3000
Empty Grade (%)	0
Empty Effective Grade (%)	5

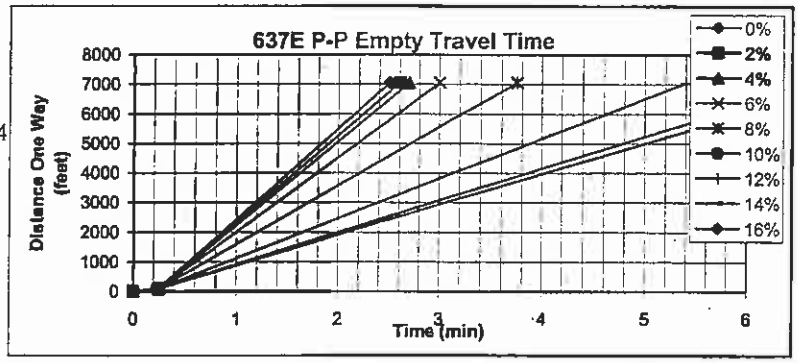
Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	2.0
Empty Travel Time (from chart)	1.5

Quantity of Material to be Moved

Length (ft)	275,953
Width (ft)	200
Total (cy)	3,270,554





Cycle Time = 1.0 (Load Time) + 2.0 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.5 (Empty Trip Time) = 5.1 min

Cycles/Hour = 60 min/hr / 5.1 (Cycle Time) = 12 cycles/hr

Hourly Production = 31 (Adjusted Load (cy)) x 11.76 (Cycles/Hour) = 365 cy/hr

Hours Required = 3,270,554 (Volume) / 365 (Hourly Production) x 1.371 (Work Schedule Factor) = 12298 hrs

Reference: Cat Handbook, Ed. 28

Table:	24-5-31
Mine Area:	Kayenta Primary Roads
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Kayenta Mine primary roads

Revegetation Area

Area (acre)	1,267
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 1267 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$1,572,349**

Reseeding Costs = 1267 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$514,403**

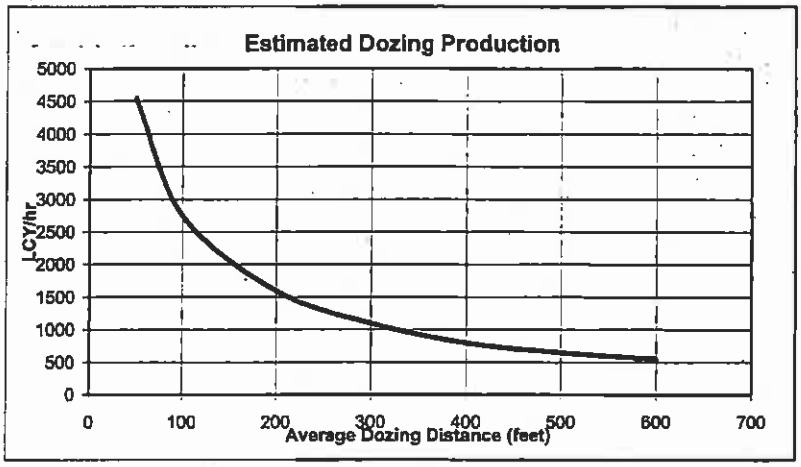
References: Table 24-1-3

Table:	24-5-32
Mine Area:	Kayenta Ancillary Roads
Project:	Culvert Removal
Task:	Culvert Removal/Disposal
Equipment:	D11R Dozer

Earthmoving Activity:
Remove and dispose of culvert embankment material and culverts.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes
Description of Dozer Use	
Average dozing distance (feet)	300
Hourly production (from chart)	1100
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82
Productivity Adjustment Factors	
Operator Factor	
Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no
Material Factor	
Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no
Production Method/Blade Factor	
Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes
Poor Visibility	
(I.e., dust, rain, snow, fog, or darkness) (0.8)	no
Elevation Factor	
<7,500 feet (1.0)	yes
Quantity of Material to be Moved	
Total (cy)	325,191



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,100 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **676.5 cy/hr**

Hours Required = 325,191 (Total (cy) Volume to be Moved) / 676.5 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **659 Hours**

Culvert (ft)	6960
Culvert Disposal Cost (at $0.23/cf)	$20,721

Note: Quantity of material and culvert are 60% of total for Kayenta portion of the cost.

References: Cat Handbook, Ed. 28

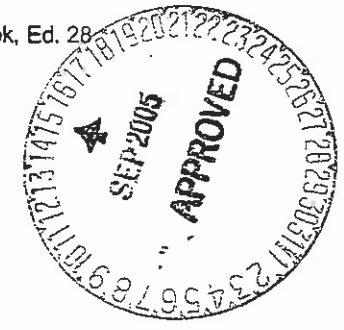


Table:	24-5-33
Mine Area:	Kayenta Ancillary Roads
Project:	Surfacing Removal
Task:	Surfacing Removal/Disposal
Equipment:	D11R Dozer

Earthmoving Activity:
Push one foot of gravel/scoria off the side of the road for burial

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use

Average dozing distance (feet)	50
Hourly production (from chart)	4550
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cylinder (.7)	no
Normal material (1)	no
Hard to drift; (.8)	yes
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

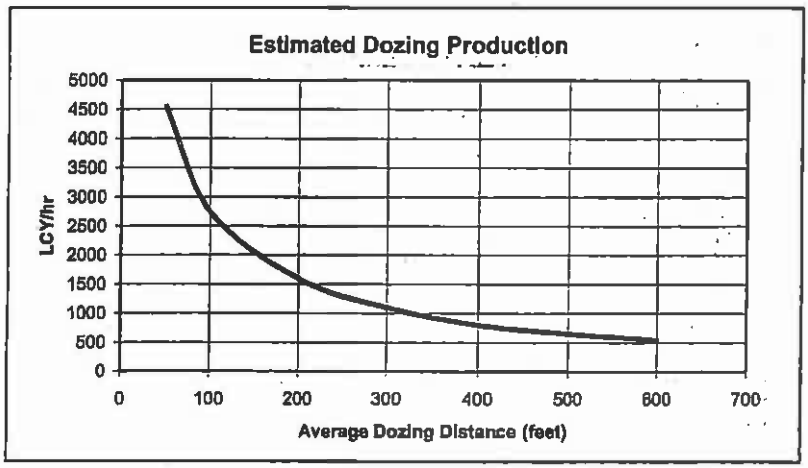
(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved

Length (ft)	351,207
Width (ft)	25
Total (cy)	325,191



Productivity Adjustment Factor = 0.75 (Operating Factor) x 0.8 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.49**

Net Hourly Production = 4,550 (Normal Hourly Production (see graph above)) x 0.49 (Productivity Adjustment Factor) = **2238.6 cy/hr**

Hours Required = 325,191 (Total (cy) Volume to be Moved) / 2238.6 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **199 Hours**

References: Cat Handbook, Ed. 28

Table:	24-5-34
Mine Area:	Kayenta Ancillary Roads
Project:	Surface Ripping
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Rip 3' of subbase to aid in vegetation establishment.

Characterization of Dozer and Ripper Used:
D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
Length (ft)	351,207
Width (ft)	25
Total (cy)	975574

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = 3.00 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **213 bank cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4655 hours**

Hours Required = 975,574 (Volume to be Ripped) / 4655 (Ripping Production) x 1.371 (Work Schedule Factor) = **287 hours**

Reference: Cat Handbook, Ed. 28

Table:	24-5-35
Mine Area:	Kayenta Ancillary Roads
Project:	Grade Ripped Areas
Task:	Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grade the cut and fills to blend into surrounding topography and to drain and bury road surface material a minimum of 3'.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded

Length (ft)	351,207
Width (ft)	80
Total (acres)	645

Hours Required	=	645 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	=	7077	Hours

Note: Production rate based on PWCC experience.

Table:	24-5-36
Mine Area:	Kayenta Ancillary Roads
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place 1.6' topsoil to cover graded area.

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

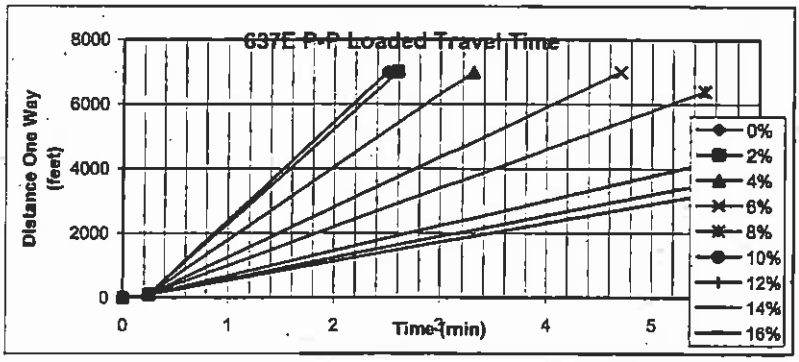
Loaded Distance (ft)	3000
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	3000
Empty Grade (%)	0
Empty Effective Grade (%)	5

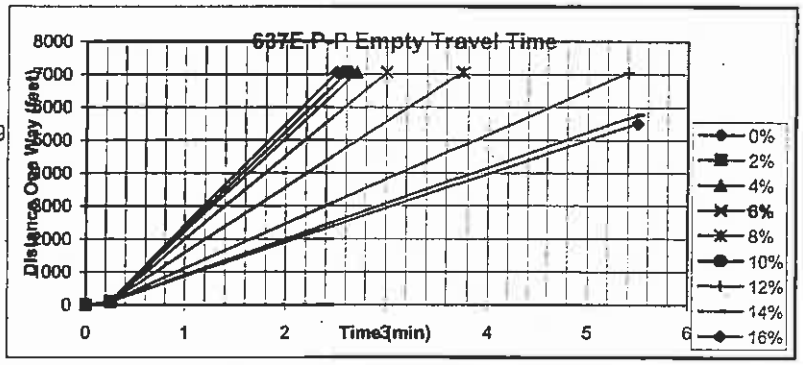
Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	2.0
Empty Travel Time (from chart)	1.5

Quantity of Material to be Moved

Length (ft)	351,207
Width (ft)	80
Total (cy)	1,664,979





Cycle Time =	1.0	+	2.0	+	0.6	+	1.5	=	5.1 min
	Load Time		Loaded Trip Time		Maneuver and Spread Time		Empty Trip Time		

Cycles/Hour =	60 min/hr	/	5.1 Cycle Time	=	12 cycles/hr
Hourly Production =	31 Adjusted Load (cy)	x	11.76 Cycles/ Hour	=	365 cy/hr

Hours Required =	1,664,979 Volume	/	365 Hourly Production	x	1.371 Work Schedule Factor	=	6261 hrs

Reference: Cat Handbook, Ed. 28

Table:	24-5-37
Mine Area:	Kayenta Ancillary Roads
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Kayenta Mine ancillary roads

Revegetation Area

Area (acre)	645
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 645 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$800,454**

Reseeding Costs = 645 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$261,873**

References: Table 24-1-3

Table:	24-5-38	Page 1
Mine Area:	Kayenta Water Storage and Sedimentation Ponds	
Project:	Clean Out Sediment	
Task:	Sediment Removal	
Equipment:	D11R Dozer	

Earthmoving Activity:
Sediment removal/disposal (65%) from pond areas.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0) yes

Description of Dozer Use

Average dozing distance (feet)	200
Hourly production (from chart)	.1600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82

Productivity Adjustment Factors
Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

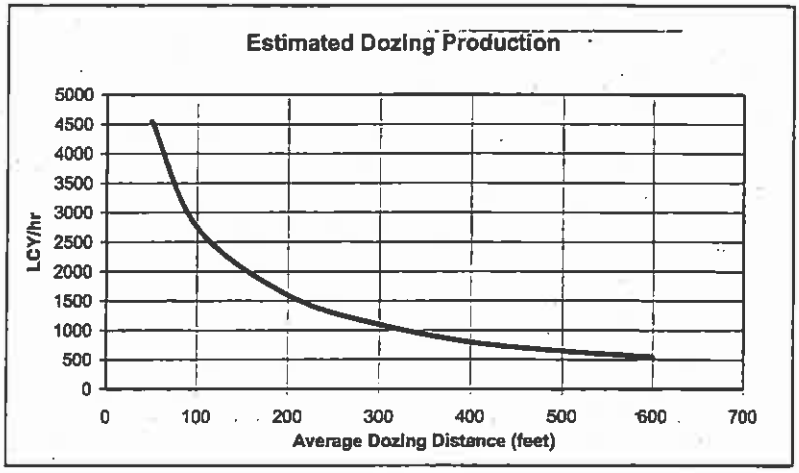
Poor Visibility

(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved
384,078 cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **984 cy/hr**

Hours Required = 384,078 (Volume to be Moved) / 984 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **535 Hours**

Notes:
1. Quantity of material to be moved based on 65% of total sediment, 25% is assumed in the incised portion of the pond, not requiring removal and 10% is cleaned out with a dragline.
2. Quantity of material is based on 60% (Kayenta portion of cost) of water storage and sedimentation ponds.

References: Table 24-2-10 and Cat Handbook, Ed. 28

Table:	24-5-38 (cont.) Page 2
Mine Area:	Kayenta Water Storage and Sedimentation Ponds
Project:	Clean Out Sediment
Task:	Sediment Removal
Equipment:	LS-208H Linkbelt

Earthmoving Activity:
Sediment removal/disposal (10%) from pond areas with a dragline.

Characterization of Dragline Used (type, size, etc):
LS-208H Linkbelt with dragline, bucket capacity (yd^3) = 2

Swing depth and angle correction[3] 0.9

Productivity Adjustment Factors
Operator Factor
Is operator excellent (1) no
Is operator average (.75) yes
Is operator poor (.6) no

Quantity of Material to be Moved[1]
59,089 cy

Productivity Adjustment Factor = 0.75 (Operating Factor) x 0.9 (Swing Factor) = **0.68**

Net Hourly Production = 145 (Normal Hourly Production[2]) x 0.68 (Productivity Adjustment Factor) = **97.875 cy/hr**

Hours Required = 59,089 (Volume to be Moved) / 97.875 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **828 Hours**

Notes: 1. Quantity of material to be moved based on 65% of total sediment, 25% is assumed in the incised portion of the pond, not requiring removal and 10% is cleaned out with a dragline.
2. Quantity of material is based on 60% (Kayenta portion of cost) of water storage and sedimentation ponds.
3. Production rate based on Peabody experience.
4. Optimum depth of cut is 11.8 feet.

Reference: Table 24-2-10

Table:	24-5-39
Mine Area:	Kayenta Water Storage and Sedimentation Ponds
Project:	Embankment Removal
Task:	Grade Embankment into Basin
Equipment:	D11R Dozer

Earthmoving Activity:
Blade embankment material into surrounding drainage, pond area or sides of drainage.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use

Average dozing distance (feet)	200
Hourly production (from chart)	1600
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

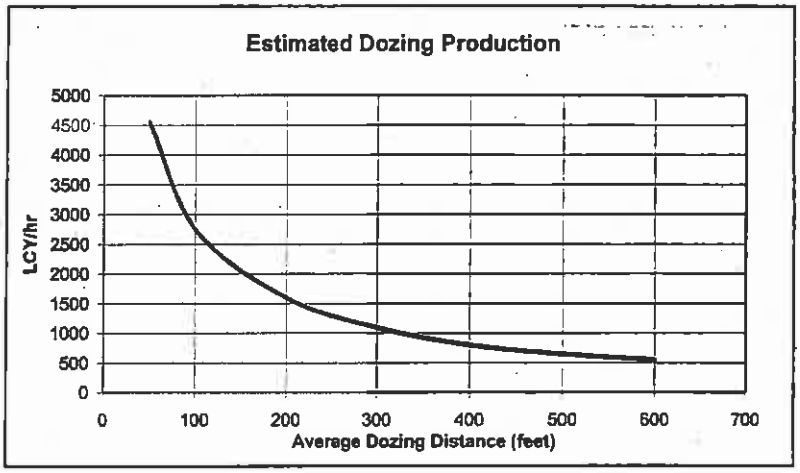
(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved

881,112	cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,600 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **984 cy/hr**

Hours Required = 881,112 (Total Volume to be Moved) / 984 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **1,228 Hours**

References: Table 24-2-10 and Cat Handbook, Ed. 28

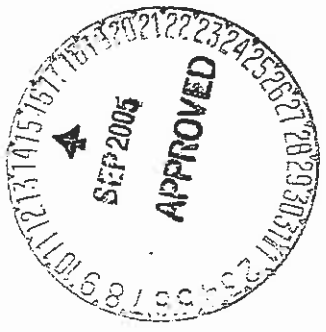


Table:	24-5-40
Mine Area:	Kayenta Water Storage and Sedimentation Ponds
Project:	Grade Pond Areas
Task:	Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grade the cut and fills to blend into surrounding topography and to drain and bury road surface material a minimum of 3'.

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded
332 acres

Hours Required	=	332 / Area to be Graded (acres)	0.125 x Net Hourly Production (acres/hr)	1.371 = Work Schedule Factor	3646 Hours

Note: Production rate based on PWCC experience.

Reference: Table 24-2-10

Table:	24-5-41
Mine Area:	Kayenta Water Storage and Sedimentation Ponds
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity
Haul and place 1.6' topsoil to disturbed pond areas.

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

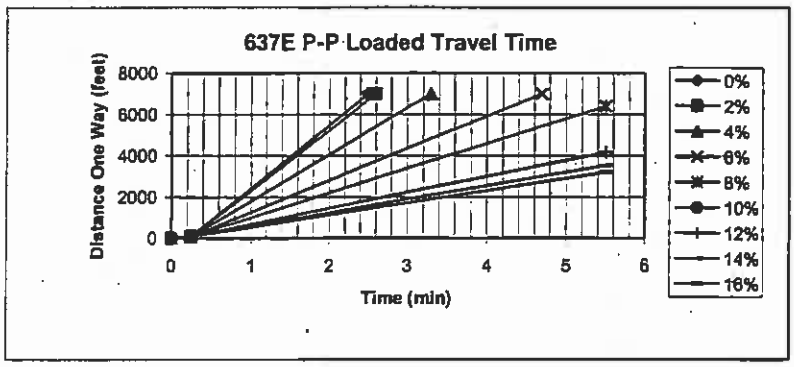
Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

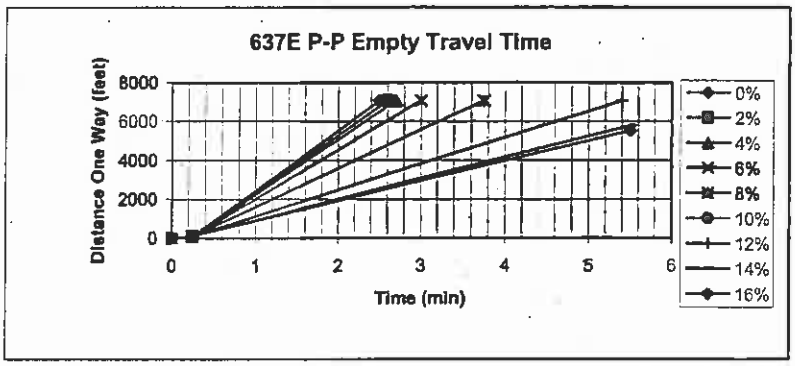
Loaded Distance (ft)	3000
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	3000
Empty Grade (%)	0
Empty Effective Grade (%)	5

Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	2.0
Empty Travel Time (from chart)	1.5

Quantity of Material to be Moved
857,725 cy





Cycle Time = 1.0 (Load Time) + 2.0 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 1.5 (Empty Trip Time) = 5.1 min

Cycles/Hour = 60 min/hr / 5.1 Cycle Time = 12 cycles/hr

Hourly Production = 31 Adjusted Load (cy) x 11.76 Cycles/Hour = 365 cy/hr

Hours Required = 857,725 Volume / 365 Hourly Production x 1.371 Work Schedule Factor = 3225 hrs

References: Table 24-2-10 and Cat Handbook, Ed. 28

Table:	24-5-42
Mine Area:	Kayenta Water Storage and Sedimentation Ponds
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
Kayenta Mine regraded sedimentation and water storage ponds.

Revegetation Area

Area (acre)	332
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 332 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$412,359**

Reseeding Costs = 332 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$134,906**

References: Table 24-1-3

Table: 24-5-43 Page 1
Mine Area: Kayenta Environmental Monitoring Sites
Project: Off Permit Environmental Monitoring Sites
Task: Concrete Removal/Disposal

Environmental Monitoring Sites

Approximately 16 off-permit environmental monitoring sites will exist in 2001. The sites vary in size and disturbance area. Ten of these sites are minor sites consisting only of a single riser (e.g., alluvial monitoring well, precipitation gage, or crest gage). The remaining six sites are slightly larger and may include concrete flumes, steel sediment sample structures, or overhead steel catwalk structures, etc. for stormwater sampling. In order to be conservative, Peabody included enough reclamation liability costs to remove the monitoring structures, grade and blend the site, assuming the entire bonding area is disturbed, and reclaim and revegetate the site. Following is a list of monitoring sites and estimated bonding area:

Site ID	Bond Area (acres)		Site ID	Bond Area (acres)	
ALUV76R	1		CG25	1	
ALUV77	1		CG34	1	
ALUV94	1		SW16	3	
ALUV95	1		SW18	3	
ALUV102	1		SW25	3	
ARG152	1		SW26	3	
ARG153	1		SW34	3	
ARG154	1		SW155	3	
	8	acres		20	acres

Total Reclamation Area = 28 acres

Table: 24-5-43 (cont.) Page 2
Mine Area: Kayenta Environmental Monitoring Sites
Project: Off Permit Environmental Monitoring Sites
Task: Concrete Removal/Disposal
Equipment Miscellaneous

Description	Quantity (ft^3)	Unit Cost	No. of Sites	Total
Demolish steel and concrete at six SW sites	18000	0.17	6	$18,360
Concrete/materials to grout alluvial wells (minor sites)	1	50	10	$500
Laborer (minor sites)	2	52.56	10	$1,051
Pickup Truck (minor sites)	1	32.11	10	$321
		Total Cost =		$20,232
		60% of Total Cost =		$ 12,139

Estimator Notes
1. Volume dimensions are 300' x 10' x 6'.
2. Assume 4 hours at each site.
3. Assume pickup truck is $7.23 per hour.
4. Assume 60% of total cost for Kayenta Mine portion of cost.

Table: 24-5-44 Page 1
Mine Area: Kayenta Environmental Monitoring Sites
Project: Grade Reclaimed Area
Task: Site Reclamation
Equipment: D11R Dozer

Earthmoving Activity
Grade the cut and fills to blend into surrounding topography and to drain (SW sites).

Characterization of Dozer Used (type, size, etc)
D11R, three shank ripper, U-blade

Production Rate (acres/shift) 1.0

Acres to be Graded
Total (acres) 11

Hours Required	=	11 Area to be Graded (acres)	/	0.125 Net Hourly Production (acres/hr)	x	1.371 Work Schedule Factor	=	118 Hours

Notes: Production rate based on PWCC experience.
Acres based on 60% of total acres for Kayenta portion of the cost.

References: Cat Handbook, Ed. 28

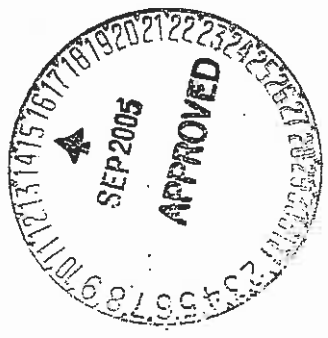


Table:	24-5-44 (cont.)	Page 2
Mine Area:	Kayenta Environmental Monitoring Sites	
Project:	Revegetation	
Task:	Site Reclamation	
Equipment:	Miscellaneous	

Revegetation Area Description

Kayenta Mine percentage of revegetating the six "SW" sites

Revegetation Area

Area (acre)	17
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 17 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$20,849**

Reseeding Costs = 17 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$6,821**

Note: Revegetation area based on 60% of total area for Kayenta portion of cost.

References: Table 24-1-3

Table:	24-5-45
Mine Area:	Kayenta Monitoring Wells
Project:	Reclaim Monitoring Wells
Task:	Well/Site Reclamation
Equipment:	Miscellaneous

Environmental Monitoring Water Wells

Approximately 95 monitoring water wells will exist in 2001. Well abandonment procedures to be used include:

1) Cutting the casing off a foot below ground level or even with the ground surface;
2) Filling the well bore from the bottom to within 20 feet of the surface with cement;
3) Grouting the top 20 feet of the well bore with cement;
4) Removing all locking well covers and protective fences;
5) Scarifying and seeding the ground surface in the immediate vicinity of the well.

Abandonment cost per well = $1,000 per well

Reclamation Cost	=	95 Number of Wells	x	$1,000 Cost per Well	x	0.6 60% of Total	=	$57,000

Note: Reclamation Cost based on 60% of total for Kayenta portion of the cost.

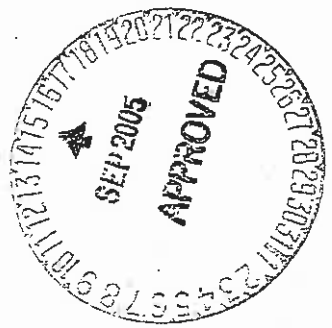


Table:	24-5-46
Mine Area:	Kayenta N-11 Coal Handling Facility
Project:	Cut/Fill Earthwork
Task:	Cut/Fill Earthwork
Equipment:	637E P-P Scraper

Earthmoving Activity
Fill earthwork.

Characterization of Scraper Used (type, capacity, etc)
637E P-P Scraper - capacity = 31 cy

Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

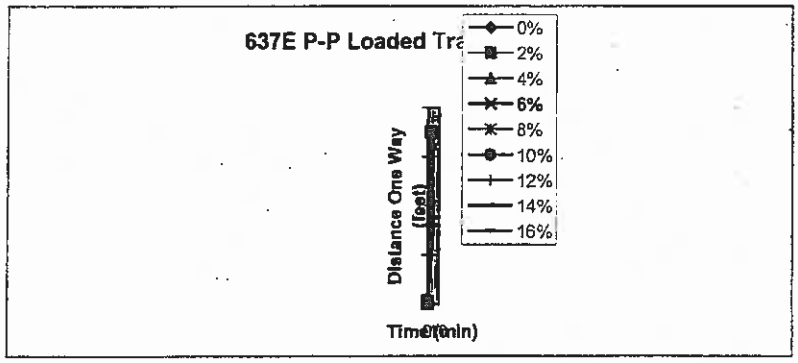
Loaded Distance (ft)	3000
Loaded Grade (%)	0
Loaded Effective Grade (%)	5
Empty Distance (ft)	3000
Empty Grade (%)	0
Empty Effective Grade (%)	5

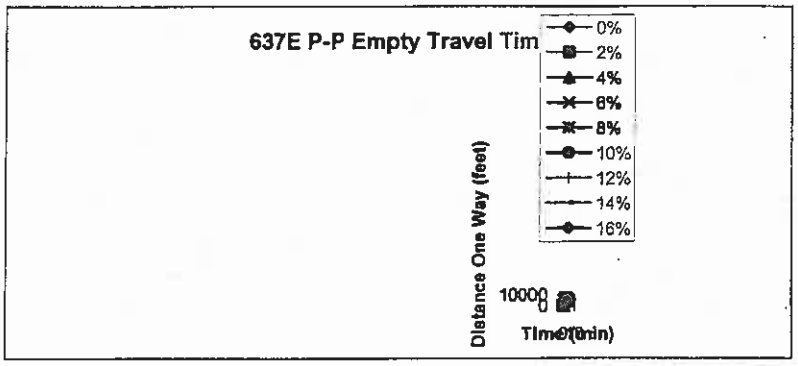
Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	2.0
Empty Travel Time (from chart)	1.5

Quantity of Material to be Moved

Total (cy)	659,063





Cycle Time = 1.0 Load Time + 2.0 Loaded Trip Time + 0.6 Maneuver and Spread Time + 1.5 Empty Trip Time = 5.1 min

Cycles/Hour = 60 min/hr / 5.1 Cycle Time = 12 cycles/hr

Hourly Production = 31 Adjusted Load (cy) x 11.76 Cycles/Hour = 365 cy/hr

Hours Required = 659,063 Volume / 365 Hourly Production x 1.371 Work Schedule Factor = 2478 hrs

Table:	24-5-47
Mine Area:	Kayenta N-11 Coal Handling Facility
Project:	Grade Facilities Areas
Task:	Facilities Area Grading
Equipment:	D11R Dozer

Earthmoving Activity
Grading the cut and fills to blend into the surrounding topography to drain, burial of road surface material a minimum of three feet.

Characterization of Dozer Used (type, size, etc):
D11R, three-shank ripper, U-blade
Power shift transmission (1.0): yes

Description of Dozer Use

Average dozing distance (feet)	400
Hourly production (from chart)	800
Grade (in percent)	-10
Grade Correction	1.2
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

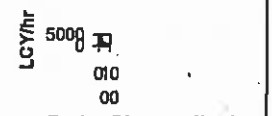
(i.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved
422,795 cy

Estimated Dozing Production



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.2 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.74**

Net Hourly Production = 800 (Normal Hourly Production (see graph above)) x 0.74 (Productivity Adjustment Factor) = **590 cy/hr**

Hours Required = 422,795 (Volume to be Moved) / 590 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **982 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-8

Table: 24-5-50
Mine Area: Kayenta Draglines and Shovels
Project: Dragline and Shovel Removal
Task: Disassemble and Remove Draglines and Shovels
Equipment: Miscellaneous

Description	Quantity (units))	Unit Cost	Removal Cost
2570 Dragline	1	$200,000.00	$200,000
8750 Dragline	1	$200,000.00	$200,000
8200 Dragline	1	$200,000.00	$200,000
1260 Dragline	1	$100,000.00	$100,000
295 Shovel	2	$50,000.00	$100,000
		Total	$800,000

Note: Cost based on PWCC experience.

Table: 24-5-01
Mine Area: Joint
Project: Facilities Demolition
Task: Demolish Facilities
Equipment:

Structure Material	Demolition Unit Cost
Steel (s)	0.27
Concrete(c)	0.36

Description	Quantity (ft^3 unless noted)	Unit Cost	Total
Warehouse	300,000	$0.27	$81,000
Operations and Warehouse	43,200	$0.27	$11,664
Engineering Building	128,000	$0.27	$34,560
Operations Office	43,200	$0.27	$11,664
Human Resources Bldg.	84,000	$0.27	$22,680
Reclamation Barn	45,360	$0.27	$12,247
Addition/Warehouse	214,500	$0.27	$57,915
Addition of Operations	4,560	$0.27	$1,231
Reclamation Shop	50,102	$0.27	$13,528
Reclamation Office	20,020	$0.27	$5,405
J3 Airport Building	21,600	$0.27	$5,832
Const. Tr. Ct. Pumphouse	1,920	$0.27	$518
Const. Tr. Ct. Watertank	13,400	$0.27	$3,618
Ambulance Garage	17,550	$0.27	$4,739
Oil Lab	11,520	$0.27	$3,110
MCW Water Tank	13,400	$0.27	$3,618
Public Coal Facility	61,500	$0.27	$16,605
Public Coal Conveyor Length (ft)	600	$0.27	$162
MCW Fuel Farm	30,100	$0.27	$8,127
Water Well Trailer	7,840	$0.27	$2,117
Old E.Q. Trailer	15,960	$0.27	$4,309
Waste Handling Facility	2,468	$0.27	$666
Additional/Warehouse	49,780	$0.27	$13,441
Reclamation Barn/Addition	36,288	$0.27	$9 798
Total			**$328,554**

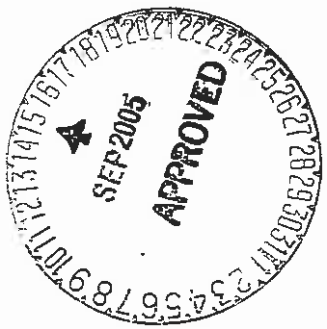


Table:	24-5-02
Mine Area:	Joint
Project:	Concrete Removal
Task:	Concrete Removal/Disposal
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity
Remove 8" of concrete from facilities area.

Characterization of Dozer and Ripper Used:
D11R, single shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	0.7
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
1,925	cy

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = 0.67 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **47 bank cy/pass**

Ripping Production = 47 (Volume cut per pass) x 21.8 (Passes per hour) = **1,034 hours**

Hours Required = 1,925 (Volume to be Ripped) / 1,034 (Ripping Production) x 1.371 (Work Schedule Factor) = **2.6 hours**

Concrete Disposal (at $8.20/cy)= $15,787.00

References: Cat Handbook, Ed. 28, Table 24-2-8.

Table:	24-5-03
Mine Area:	Joint
Project:	Surfacing Removal
Task:	Surfacing Removal/Disposal
Equipment:	D11R Dozer

Earthmoving Activity:

Push 1' of gravel or scoria off the side of the facilities parking area.
Doze a trench 4' deep to accept surfacing material, then push the 4' of suitable material back over the top

Characterization of Dozer Used (type, size, etc):

D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use

Average dozing distance (feet)	200
Hourly production (from chart)	1,500
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

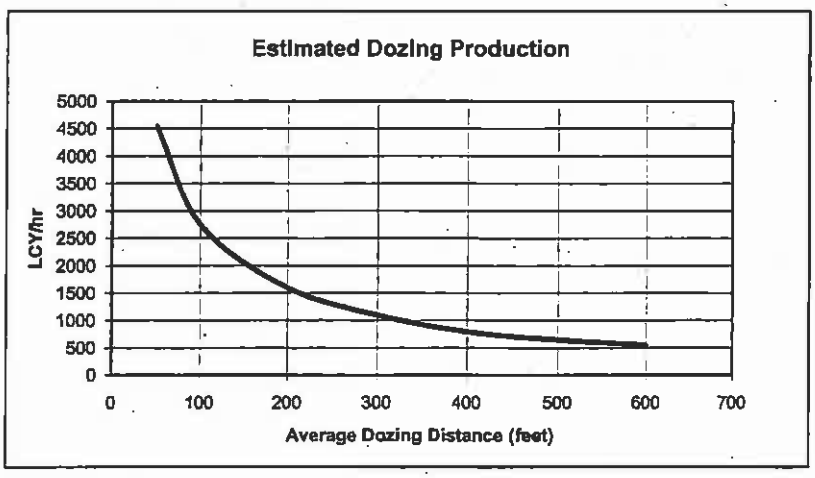
(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved

1,252,295	cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,500 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **923 cy/hr**

Hours Required = 1,252,295 (Volume to be Moved) / 923 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **1,862 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-8

Table:	24-5-04
Mine Area:	Joint
Project:	Surface Ripping
Task:	Dozer Ripping
Equipment:	D11R Dozer - Ripper Equipped

Earthmoving Activity

Rip 3' of subbase to aid in vegetation establishment.

Characterization of Dozer and Ripper Used:

D11R, three shank ripper, semi-u blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Rip depth (ft)	3
Cut spacing (ft/pass)	6.4
Cut length (ft)	300
Speed (ft/min)	120

Quantity of Material to be Ripped	
947,885	cy

Cycle Time = 300 (Cut Length) / 120 (Speed Factor (fpm)) + 0.25 (Turn Time) = **2.8 min/pass**

Passes per hour = 60 (min/hr) / 2.8 (Cycle Time) = **21.8 pass/hr**

Volume cut per pass = 3.00 (Tool Penetration) x 6.4 (Cut Spacing) x 300 (Cut Length) / 27 (cf/cy) = **213 bank cy/pass**

Ripping Production = 213 (Volume cut per pass) x 21.8 (Passes per hour) = **4,655 hours**

Hours Required = 947,885 (Volume to be Ripped) / 4,655 (Ripping Production) x 1.371 (Work Schedule Factor) = **279 hours**

Reference: Cat Handbook, Ed. 28, Table 24-2-8.

Table:	24-5-05
Mine Area:	Joint
Project:	Grade Facilities Areas
Task:	Facilities Area Grading
Equipment:	D11R Dozer

Earthmoving Activity

Grading the cut and fills to blend into the surrounding topography to drain, burial of road surface material a minimum of three feet.

Characterization of Dozer Used (type, size, etc):

D11R, three-shank ripper, U-blade

Power shift transmission (1.0)	yes

Description of Dozer Use

Average dozing distance (feet)	200
Hourly production (from chart)	1,500
Grade (in percent)	0
Grade Correction	1
Material Unit Weight (lb/lcy)	2,800
Density Correction	0.82

Productivity Adjustment Factors

Operator Factor

Is operator excellent (1)	no
Is operator average (.75)	yes
Is operator poor (.6)	no

Material Factor

Loose stockpile (1.2)	no
Hard to cut; frozen -	
with tilt cylinder (.8)	no
without tilt cyliner (.7)	no
Normal material (1)	yes
Hard to drift; (.8)	no
Rock, ripped or blasted (.75)	no

Production Method/Blade Factor

Slot dozing (1.2)	no
Side by side dozing (1.2)	no
Normal dozing (1.0)	yes

Poor Visibility

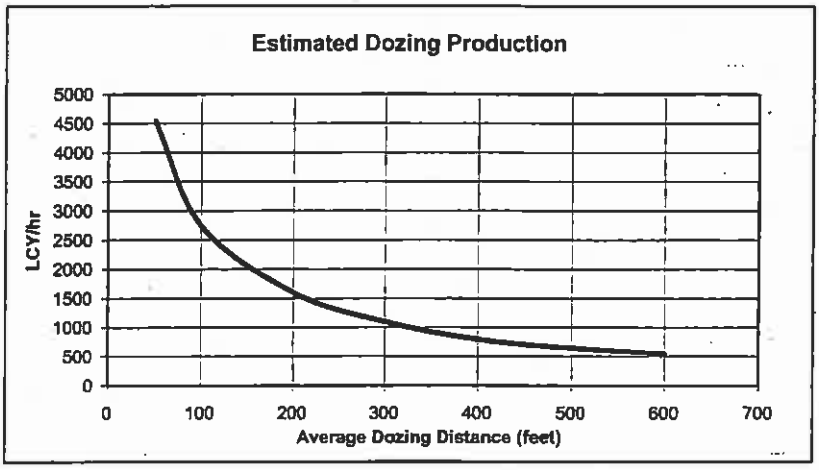
(I.e., dust, rain, snow, fog, or darkness) (0.8)	no

Elevation Factor

<7,500 feet (1.0)	yes

Quantity of Material to be Moved

947,885	cy



Productivity Adjustment Factor = 0.75 (Operating Factor) x 1.0 (Material Factor) x 1.0 (Grade Factor) x 0.82 (Density Correction) x 1.00 (Production Method) x 1.00 (Visibility) x 1.00 (Elevation) x 1.00 (Direct Drive Trans) = **0.62**

Net Hourly Production = 1,500 (Normal Hourly Production (see graph above)) x 0.62 (Productivity Adjustment Factor) = **923 cy/hr**

Hours Required = 947,885 (Volume to be Moved) / 923 (Net Hourly Production) x 1.371 (Work Schedule Factor) = **1,409 Hours**

References: Cat Handbook, Ed. 28, Table 24-2-8

Table:	24-5-06
Mine Area:	Joint
Project:	Topsoil Replacement
Task:	Haul and Place Topsoil
Equipment:	637E P-P Scraper

Earthmoving Activity

Haul 4' of material to cover concrete pads and 1.25' of material to cover remaining parking/storage areas.

Characterization of Scraper Used (type, capacity, etc)

637E P-P Scraper - capacity = 31 cy

Description of Scraper Route (haul distance, % grade, average rolling resistance for each segment, etc.)

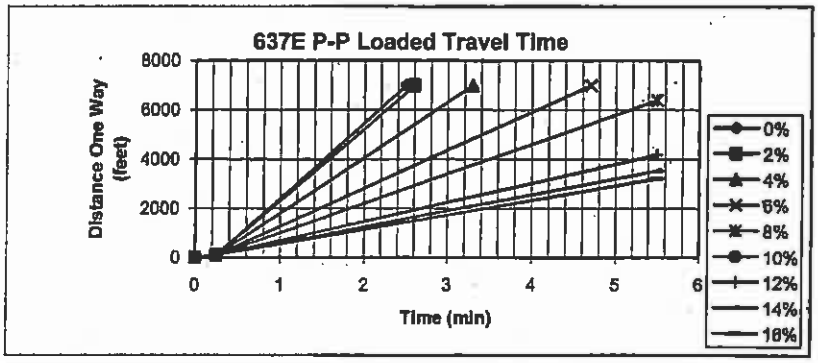
Loaded Distance (ft)	500
Loaded Grade (%)	0
Loaded Effective Grade (%)	3
Empty Distance (ft)	500
Empty Grade (%)	0
Empty Effective Grade (%)	3

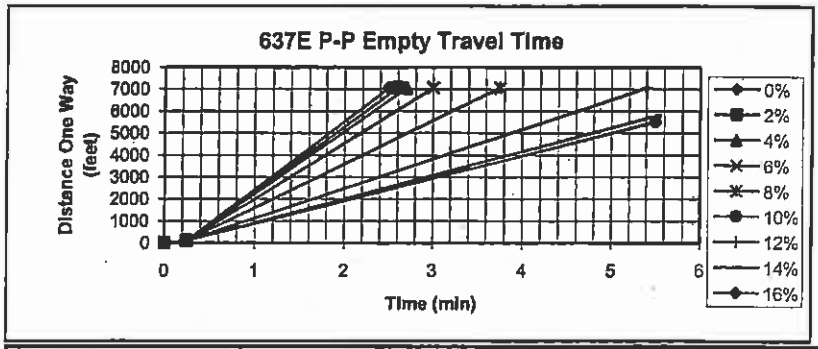
Production Times

Typical Load Time for 657E P-P	1.0
Maneuver and spread or dump	0.6
Loaded Travel Time (from chart)	0.4
Empty Travel Time (from chart)	0.6

Quantity of Material to be Moved

402,892 cy





Cycle Time = 1.0 (Load Time) + 0.4 (Loaded Trip Time) + 0.6 (Maneuver and Spread Time) + 0.6 (Empty Trip Time) = **2.6 min**

Cycles/Hour = 60 (min/hr) / 2.6 (Cycle Time) = **23 cycles/hr**

Hourly Production = 31 (Adjusted Load (cy)) x 23 (Cycles/Hour) = **715 cy/hr**

Hours Required = 402,892 (Volume) / 715 (Hourly Production) x 1.371 (Work Schedule Factor) = **772 hrs**

Reference: Table 24-2-8, Cat Handbook, Ed. 28

Table:	24-5-07
Mine Area:	Joint
Project:	Revegetation
Task:	Revegetation
Equipment:	Miscellaneous

Revegetation Area Description
All major facilities

Revegetation Area

Area (acre)	328
Seeding, fertilizing, mulching and fencing costs (per acre)	$926.00
Tree and Shrub Costs (per acre)	$315.00
Reseeding Cost (per acre)	$812.00
Percent Failure	50%

Revegetation Costs = 328 Acres * ($926.00 $/Acre for seeding, fertilizing, mulching and fencing + $315.00 $/Acre for planting trees and shrubs) = **$406,551**

Reseeding Costs = 328 Acres * 0.5 Failure * $812.00 Reseeding Cost = **$133,005**

References: Table 24-1-3 and Table 24-2-8

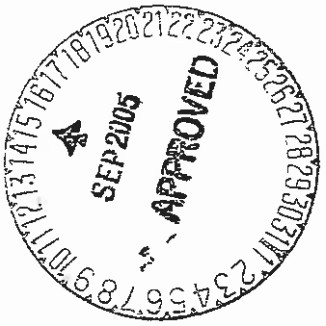


Table: 24-5-48
Mine Area: Joint
Project: Equipment Scheduling
Task: Equipment Requirements
Equipment: All

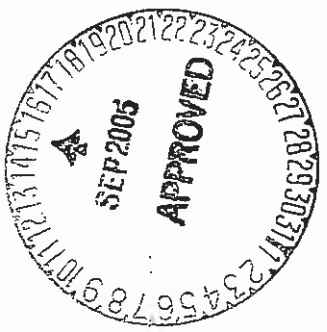
Equipment Type	Required Hours	No. of Units	Hours per Unit	Required Months
MAJOR EQUIPMENT				
637E P-P Scraper	126,454	11	11,496	34.5
D11R Dozer - Ripper	7,936	1	7,936	23.8
D11R Dozer	224,724	19	11,828	35.5
D7R Dozer	1,585	1	1,585	4.8
988F Loader Series II	2,181	1	2,181	6.5
Driltech D55SP	12,228	2	6,114	18.3
769D Rear Dump Truck	1,943	3	648	1.9
LS-208H Linkbelt	1,722	1	1,722	5.2
		39		
SUPPORT EQUIPMENT				
16H Grader	24,000	2	12,000	36
Truck Tractor	12,000	1	12,000	36
Water Truck	22,000	2	11,000	33
Service Truck	12,000	1	12,000	36
Flatbed Truck	12,000	1	12,000	36
Light Duty Diesel Crew	70,000	7	10,000	30
Welding/Supply Truck	12,000	1	12,000	36
Equipment Trailer	12,000	1	12,000	36
Parts Trailer	8,000	2	4,000	12
Office Trailer	8,000	2	4,000	12
Diesel Floodlighting	108,000	9	12,000	36
		29		

Note: Required months based on 4,000 hours per year or 333 hours per month.

Reference: Table 24-1-5

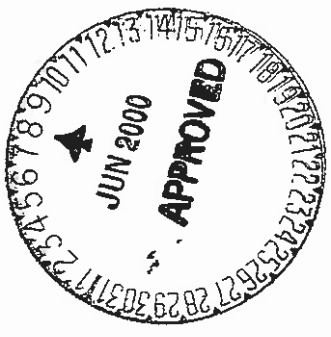
Table: 24-5-49
Mine Area: Joint
Project: On-Site Mobilization
Task: Interior Mobilization Hours
Equipment: All

Mine Area	637E P-P Scraper	D11R Dozer	D7R Dozer	16H Grader	988F Series II Loader	DrilTech D55SP	769D Dump Truck	LS-208H Linkbelt
J-7	16	32	8	4	8	4	12	
N-6	16	20	8	4	8	4	12	
BM Facilities	16	8						
J-16	16	24	8	4	8	4	12	
J-19	16	16	8	4	8		12	
J-21	16	32	8	4	8	4	12	
N-9	16	24	8	4	8	4	12	
N-11	16	4	8	4	8	4	12	
N-14	8	16	8	4	8		12	
N-14E	8	8						
Kayenta Facilities	16	16						
Joint Facilities	16	16						
All Areas	227	382						342
Total	403	598	64	32	64	24	96	342



ATTACHMENT 24-6

EXPLORATION BONDS



ATTACHMENT 24-6

N-9 POWERLINE ADDITION -

BOND CALCULATION

Revised 04/23/10

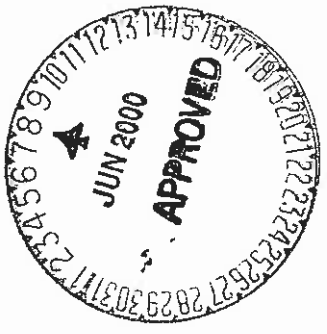
Table: 24-6-01
Mine Area: 2010 N-9 New Powerline Addition
Project: Facilities-Powerlines
Task: Remove Powerlines
Equipment: Miscellaneous

	Description	Quantity (ft)	Days	Unit Cost	Demolition Cost
Direct Cost:	Powerline Removal (ft)	5,600	1	$7,000.46	$7,425
Indirect Cost:	@ 28.2% with Tax & 2010 Inflation				$2,094
Bond Required:					9,519
					Use $10,000

Assumptions:
1. Means crew R-6 removes 1 mile of powerline per day.
2. Daily rate for crew R-6 is $7,000.46/day from RSMeans Site Work & Landscape Cost Data 2010.
3. See Drawing 85360 and 89800, Sheet NW, all other disturbance is included within N-9 Mining Area.

ATTACHMENT 24-6

EXPLORATION BONDS



CHAPTER 24
TABLE 24-6-01

RECLAMATION COST ESTIMATE

The following summarizes estimated reclamation costs associated with the proposed two-year Phase I PWCC exploration program for the J-21 Mining Area:

Plugging drillholes (within 5-yr area) – 121 (5" x 500') @ $50/hole	$6,100
Sealing drillholes (outside 5-yr area) – 295 (5" x 500') @ $350/hole	$103,300
Backfilling mud pits – 310 @ 25cy @ $0.60yd	$4,700
Regrading drill pads (outside 5-yr area) – 210 @ 0.17 acre @ $2,000/acre	$71,400
Regrading roads (outside 5-yr area) – 46,533 feet @ $100 per 100 ft	$46,600
Soil replacement - [(35.7 acres-drill pads) +	
(16 acres-road) x 43,560 ft² x 0.5 ft/27 @ %0.50/yd	$20,900
Revegetation – (51.7 acres) @ $600/acre	$31,100
Total Direct Costs	**$284,100**

ATTACHMENT 24-6

BOND SUMMARY

NAVAJO	400FH4568	St. Paul Fire & Marine Ins. Co.	$15,000
	400FH4571	St. Paul Fire & Marine Ins. Co.	15,000
	400FH4573	St. Paul Fire & Marine Ins. Co.	15,000
NAVAJO/HOPI	400FN6323	St. Paul Fire & Marine Ins. Co.	15,000
	400FN6324	St. Paul Fire & Marine Ins. Co.	15,000
	400FN6325	St. Paul Fire & Marine Ins. Co.	15,000
	400FN6349	St. Paul Fire & Marine Ins. Co.	15,000

ALEXANDER & ALEXANDER, INC.
P.O. BOX 412152
KANSAS CITY MO 64141
TELEPHONE: 816-391-1000

Alexander & Alexander

ACCOUNT NUMBER
9K 140755
INVOICE NUMBER
693921
INVOICE DATE
1 5 89

TO PEABODY HOLDING COMPANY INC
JAMES J BRITTAIN
P O BOX 373
ST LOUIS MO 63166

TERMS: PAYMENT IS DUE UPON EFFECTIVE DATE OF COVERAGE
****

01	400FH4571	ST PAUL FIRE & MARINE INS CO	168.00
	#858O	PEABODY COAL COMPANY LICENSE PERMIT RENEWAL POLICY EFFECTIVE 01-20-89 EXPIRES 01-20-92 USDI COLLECTIVE BOND $15,000-NAVAJO RESERVATION AZ	
		TOTAL	168.00

RECEIVED
JAN 1 0 1989
RISK MANAGEMENT DEPARTMENT

(to replace Commercial Union Insurance Company and CK 516197)

Form 5-154 f
October 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

Copy Nonnegotiable 51 1-3-79

COLLECTIVE BOND 400FH 4571

KNOW ALL MEN BY THESE PRESENTS, That we, Peabody Coal Company of St. Louis, Missouri, as principal, and St. Paul Fire and Marine Insurance Company of St. Paul, Minnesota, as surety, are held and firmly bound unto the United States of America in the sum of fifteen thousand dollars ($15,000), lawful money of the United States, for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this 20th day of January, 19 79

The condition of this obligation is such that whereas the said principal, as lessee, has heretofore or may hereafter enter into or otherwise acquire an interest in Coal mining leases and prospecting permits on the Navajo Reservation in the State of Arizona of various dates and periods of duration, covering lands or interests in lands held by the United States in trust for individual Indians, or bands or tribes of Indians, or subject to restrictions against alienation without the consent of the Secretary of the Interior, or his authorized representative, which leases and permits have been or may hereafter be granted or approved by the Secretary of the Interior, or his authorized representative, and the identification of which herein is expressly waived by both principal and surety hereto.

WHEREAS the principal and surety agree that the coverage of this bond shall extend to and include all extensions and renewals of the leases and permits covered by this bond, such coverage to continue without any interruption due to the expiration of the term set forth therein.

WHEREAS the surety hereby waives any right to notice of any modification of any such lease or permit, or obligation thereunder whether effected by extension of time for performance, by commitment of such lease to unit, cooperative, or communitization agreement, by waiver, suspension, or change in rental, except an increase thereof, by minimum royalty payment, except an increase thereof, by compensatory royalty payment, or otherwise, this bond to remain in full force and effect notwithstanding.

WHEREAS the principal and surety agree that the neglect or forbearance of any obligee under this bond in enforcing the payment of any rental or royalty or the performance of any other covenant, condition, or agreement of any such lease or permit shall not in any way release the principal and surety, or either of them, from any liability under this bond; and

WHEREAS the principal and surety agree that in the event of any default under any such lease or permit, the obligee may prosecute any claim, suit, action, or other proceeding against the principal and surety, or either of them, without the necessity of joining the other.

ACKNOWLEDGMENT OF CORPORATION

STATE OF Delaware
COUNTY OF New Castle } ss:

Before me, a notary public, in and for said county and State on this ____ day of FEB 8 1968, 19____ personally appeared R. P. Conerly to me known to be the identical person who subscribed the name of the maker thereof to the foregoing instrument as its Vice President and acknowledged to me that he executed the same as his free and voluntary act and deed, and as the free and voluntary act and deed of such corporation, for the uses and purposes therein set forth.

MY COMMISSION EXPIRES JUNE 6, 1969

My commission expires ____, 19____ Notary Public.

ACKNOWLEDGMENT OF INDIVIDUAL

STATE OF ____
COUNTY OF ____ } ss:

Before me, a notary public, in and for said county and State, on this ____ day of ____, 19____ personally appeared ____

____, to me known to be the identical person who executed the within and foregoing instrument, and acknowledged to me that ____ executed the same as ____ free and voluntary act and deed for the uses and purposes therein set forth.

My commission expires ____, 19____ Notary Public.

ACCEPTANCE BY ASSIGNEE

The assignee in the above and foregoing assignment, made subject to the approval of the Secretary of the Interior, hereby accepts such assignment and agrees to fulfill all the obligations, conditions, and stipulations in said described indenture of lease, when assigned, and the rules and regulations of the Secretary of the Interior applicable thereto, and to furnish proper bond guaranteeing a faithful compliance with said lease and this agreement.

IN WITNESS WHEREOF, the said assignee has hereunto set its hand and seal this FEB 8 1968 day of ____, 19____

ATTEST:

By _____
W. R. Kinsey, Asst. Secretary
(Corporate Seal)

Peabody Coal Company,
a Delaware corporation

By _____
F. B. McKown, Vice President
Secretary President

CONSENT OF SURETY

The COMMERCIAL UNION INSURANCE COMPANY OF NEW YORK, of ____, surety for ____ on the bond accompanying the lease above described, hereby consents to the assignment and transfer of said lease as above made and agrees that said bond shall remain in force and effect covering obligations of assignee.

Dated at ____ this ____ day of FEB 8 1968, 19____

COMMERCIAL UNION INSURANCE COMPANY OF NEW YORK

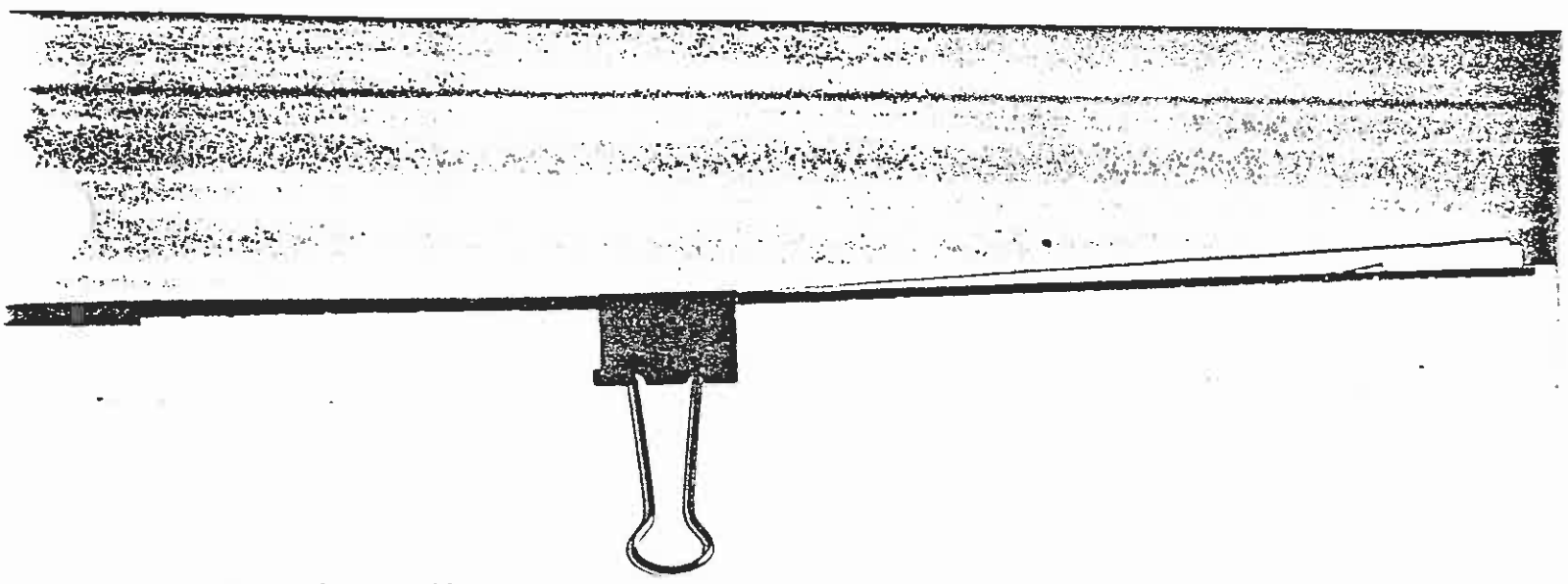
By _____
Attorney-in-fact

DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

APPROVED: ____, 19____

Area Director.

16—11659-3 U.S. GOVERNMENT PRINTING OFFICE



ALEXANDER & ALEXANDER, INC.
Alexander & Alexander
P.O. BOX 412162
KANSAS CITY MO 64141
TELEPHONE: 816-391-1000

ACCOUNT NUMBER
9K 140755
INVOICE NUMBER
693923
INVOICE DATE
1 5 89

TO
PEABODY HOLDING COMPANY INC
JAMES J BRITTAIN
P O BOX 373
ST LOUIS MO 63166

TERMS: PAYMENT IS DUE UPON EFFECTIVE DATE OF COVERAGE
****

01	400FH4573	ST PAUL FIRE & MARINE INS CO PEABODY COAL COMPANY LICENSE PERMIT RENEWAL POLICY EFFECTIVE 01-20-89 EXPIRES 01-20-92 USDI COLLECTIVE BOND $15,000 NAVAJO RESERVATION, AZ	168.00
	# 8580		
		TOTAL	168.00

RECEIVED
JAN 1 6 198-
RISK MANAGEMENT DEPARTMENT

(to replace Commercial Union Insurance Company Bond No: 516195)

Form 5-154 f
October 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

Copy -
Non negotiable
SL 1-8-79

COLLECTIVE BOND 400FH 4573

KNOW ALL MEN BY THESE PRESENTS, That we, Peabody Coal Company of St. Louis, Missouri, as principal, and St. Paul Fire and Marine Insurance Company of St. Paul, Minnesota, as surety, are held and firmly bound unto the United States of America in the sum of fifteen thousand dollars ($15,000), lawful money of the United States, for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this 20th day of Janaury, 1979

The condition of this obligation is such that whereas the said principal, as lessee, has heretofore or may hereafter enter into or otherwise acquire an interest in COAL mining leases and prospecting permits on the Navajo Reservation in the State of Arizona of various dates and periods of duration, covering lands or interests in lands held by the United States in trust for individual Indians, or bands or tribes of Indians, or subject to restrictions against alienation without the consent of the Secretary of the Interior, or his authorized representative, which leases and permits have been or may hereafter be granted or approved by the Secretary of the Interior, or his authorized representative, and the identification of which herein is expressly waived by both principal and surety hereto.

WHEREAS the principal and surety agree that the coverage of this bond shall extend to and include all extensions and renewals of the leases and permits covered by this bond, such coverage to continue without any interruption due to the expiration of the term set forth therein.

WHEREAS the surety hereby waives any right to notice of any modification of any such lease or permit, or obligation thereunder whether effected by extension of time for performance, by commitment of such lease to unit, cooperative, or communitization agreement, by waiver, suspension, or change in rental, except an increase thereof, by minimum royalty payment, except an increase thereof, by compensatory royalty payment, or otherwise, this bond to remain in full force and effect notwithstanding.

WHEREAS the principal and surety agree that the neglect or forbearance of any obligee under this bond in enforcing the payment of any rental or royalty or the performance of any other covenant, condition, or agreement of any such lease or permit shall not in any way release the principal and surety, or either of them, from any liability under this bond; and

WHEREAS the principal and surety agree that in the event of any default under any such lease or permit, the obligee may prosecute any claim, suit, action, or other proceeding against the principal and surety, or either of them, without the necessity of joining the other.

Now, if the said principal..... herein shall faithfully carry out and observe all the obligations assumed in such leases and permits to which PEABODY COAL COMPANY .... is now or may hereafter become a party, and shall observe all the laws of the United States and regulations made, or which shall be made thereunder, for the government of trade and intercourse with Indian tribes, and all rules and regulations that have been or shall hereafter be lawfully prescribed by the Secretary of the Interior relative to such mining leases and permits, and shall in all particulars comply with the provisions of such leases, permits, rules, and regulations, then this obligation shall be null and void; otherwise, to remain in full force and effect.

The rate of premium charged on this bond is $......................; the total premium paid is $......................

Signed and sealed in the presence of—

WITNESSES:*

Suzanne Luepke
P. O. Box 235, St. Louis, Mo. 63166
Henry Schwartz
P. O. Box 235, St. Louis, Mo. 63166

as to PEABODY COAL COMPANY [SEAL]
BY [signature]
Senior Vice Pres.,Operations
ATTEST:

P. O. ....

P. O. ....

as to J. M. Tou[illegible] [SEAL]
Asst. Secretary

P. O. ....

P. O. ....

as to .... [SEAL]

[signature]
P. O. Box 13647, K.C., MO. 64199
[signature]
P. O. Box 13647, K.C., Mo. 64199

as to St. Paul Fire and Marine Insurance Company [SEAL]
By: Sue Camarillo
Sue Camarillo, Attorney-in-fact

*Two witnesses to all signatures.

ALEXANDER & ALEXANDER, INC.
Alexander & Alexander
P.O. BOX 412[illegible]
KANSAS CITY MO 64141
TELEPHONE: 816-391-1000

ACCOUNT NUMBER
9K 140755
INVOICE NUMBER
693919
INVOICE DATE
1 5 89

TO
PEABODY HOLDING COMPANY INC
JAMES J BRITTAIN
P O BOX 373
ST LOUIS MO 63166

TERMS: PAYMENT IS DUE UPON EFFECTIVE DATE OF COVERAGE
****

01	400FH4568	ST PAUL FIRE & MARINE INS CO	300.00
		PEABODY COAL COMPANY	
	#8520	LICENSE PERMIT RENEWAL POLICY	
		EFFECTIVE 01-20-89 EXPIRES 01-20-94	
		USDI COLLECTIVE BOND $15,000	
		NAVAJO RESERVATION-AZ	
		TOTAL	300.00

RECEIVED
JAN 1 0 19[illegible]
RISK MANAGEMENT DEPARTMENT

October 1956 Bond No: 5-61-96)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

Copy - Non Negotiable SL-1-8-79

COLLECTIVE BOND Bond No: 400FH 4568

KNOW ALL MEN BY THESE PRESENTS, That we, Peabody Coal Company of St. Louis, Missouri, as principal, and St. Paul Fire and Marine Insurance Company of St. Paul, Minnesota, as surety, are held and firmly bound unto the United States of America in the sum of fifteen thousand dollars ($15,000) lawful money of the United States, for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this 20th day of January, 1979.

The condition of this obligation is such that whereas the said principal, as lessee, has heretofore or may hereafter enter into or otherwise acquire an interest in coal mining leases and prospecting permits on the Navajo Reservation in the State of Arizona of various dates and periods of duration, covering lands or interests in lands held by the United States in trust for individual Indians, or bands or tribes of Indians, or subject to restrictions against alienation without the consent of the Secretary of the Interior, or his authorized representative, which leases and permits have been or may hereafter be granted or approved by the Secretary of the Interior, or his authorized representative, and the identification of which herein is expressly waived by both principal and surety hereto.

WHEREAS the principal and surety agree that the coverage of this bond shall extend to and include all extensions and renewals of the leases and permits covered by this bond, such coverage to continue without any interruption due to the expiration of the term set forth therein.

WHEREAS the surety hereby waives any right to notice of any modification of any such lease or permit, or obligation thereunder whether effected by extension of time for performance, by commitment of such lease to unit, cooperative, or communitization agreement, by waiver, suspension, or change in rental, except an increase thereof, by minimum royalty payment, except an increase thereof, by compensatory royalty payment, or otherwise, this bond to remain in full force and effect notwithstanding.

WHEREAS the principal and surety agree that the neglect or forbearance of any obligee under this bond in enforcing the payment of any rental or royalty or the performance of any other covenant, condition, or agreement of any such lease or permit shall not in any way release the principal and surety, or either of them, from any liability under this bond; and

WHEREAS the principal and surety agree that in the event of any default under any such lease or permit, the obligee may prosecute any claim, suit, action, or other proceeding against the principal and surety, or either of them, without the necessity of joining the other.

Now, if the said principal herein shall faithfully carry out and observe all the obligations assumed in such leases and permits to which Peabody Coal Company is now or may hereafter become a party, and shall observe all the laws of the United States and regulations made, or which shall be made thereunder, for the government of trade and intercourse with Indian tribes, and all rules and regulations that have been or shall hereafter be lawfully prescribed by the Secretary of the Interior relative to such mining leases and permits, and shall in all particulars comply with the provisions of such leases, permits, rules, and regulations, then this obligation shall be null and void; otherwise, to remain in full force and effect.

The rate of premium charged on this bond is $_____; the total premium paid is $_____

Signed and sealed in the presence of—

WITNESSES:*

Suzanne Lupke
P. O. Box 235, St. Louis, Mo. 63166

Arlene M. Agnew
P. O. Box 235, St. Louis, Mo. 63166

P. O. _____

P. O. _____

P. O. 13647, Kansas City, Mo. 64199

Kathy M. Blank
P. O. 13647, Kansas City, Mo. 64199

P. O. _____

as to PEABODY COAL COMPANY [SEAL]

By: James F. Hobbs
Vice President, Resource Development

Attest:

~~as to~~ Marvin D. Young [SEAL]
~~XXXX~~ Secretary

St. Paul Fire and Marine Insurance Company

~~as to~~ Sue Camarillo [SEAL]
Sue Camarillo, Attorney-in-fact

P. O. _____

as to _____ [SEAL]

P. O. _____

P. O. _____

*Two witnesses to all signatures.

Alexander & Alexander

P. O. Box 19182
Kansas City, Missouri 64141
Telephone 816 391-1000

To

PEABODY HOLDING COMPANY INC
JAMES J BRITTAIN
P O BOX 373
ST LOUIS MO 63166

Terms: Payment is due as of effective date of insurance coverage

Insured			Invoice Date
SAME AS ABOVE			05 02 86
Effective	**Expiration**	**Account No.**	**Invoice No.**
05 13 86	05 13 92	6599262	233320

Insurance

LICENSE PERMIT BOND
COLLECTIVE BOND - USA
INDIAN-HOPI INDIANS - ARIZONA

R LANGE

Policy Number	Insuring Company	Premium
400FN6324 #5743	ST PAUL	100.00

Form 5-154 f
(December 1946)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

Copy from Negotiator

COLLECTIVE BOND

Bond No. 57 07 00

KNOW ALL MEN BY THESE PRESENTS, That we, Sentry Royalty Company, a Nevada corporation of St. Louis, Missouri, as principal, and COMMERCIAL UNION INSURANCE COMPANY OF NEW YORK of New York, as sureties, are held and firmly bound unto the United States of America in the sum of fifteen thousand dollars ($15,000), lawful money of the United States, for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this 13th day of May, 19 66.

The condition of this obligation is such that whereas the said principal, as lessee, has heretofore or may hereafter enter into or otherwise acquire an interest in coal mining leases and prospecting permits on the Navajo-Hopi Reservation in the State of Arizona of various dates and periods of duration, covering lands or interests in lands held by the United States in trust for individual Indians, or bands or tribes of Indians, or subject to restrictions against alienation without the consent of the Secretary of the Interior, or his authorized representative, which leases and permits have been or may hereafter be granted or approved by the Secretary of the Interior, or his authorized representative, and the identification of which herein is expressly waived by both principal and surety hereto.

WHEREAS the principal and surety agree that the coverage of this bond shall extend to and include all extensions and renewals of the leases and permits covered by this bond, such coverage to continue without any interruption due to the expiration of the term set forth therein.

WHEREAS the surety hereby waive any right to notice of any modification of any such lease or permit, or obligation thereunder whether effected by extension of time for performance, by commitment of such lease to unit, cooperative, or communitization agreement, by waiver, suspension, or change in rental, except an increase thereof, by minimum royalty payment, except an increase thereof, by compensatory royalty payment, or otherwise, this bond to remain in full force and effect notwithstanding.

WHEREAS the principal and surety agree that the neglect or forbearance of any obligee under this bond in enforcing the payment of any rental or royalty or the performance of any other covenant, condition, or agreement of any such lease or permit shall not in any way release the principal and surety, or either of them, from any liability under this bond; and

WHEREAS the principal and surety agree that in the event of any default under any such lease or permit, the obligee may prosecute any claim, suit, action, or other proceeding against the principal and surety, or either of them, without the necessity of joining the other.

Now, if the said principal.... he.... shall faithfully carry out and observe.... the obligations assumed in such leases and permits to which Sentry Royalty Company is now or may hereafter become a party, and shall observe all the laws of the United States and regulations made, or which shall be made thereunder, for the government of trade and intercourse with Indian tribes, and all rules and regulations that have been or shall hereafter be lawfully prescribed by the Secretary of the Interior relative to such mining leases and permits, and shall in all particulars comply with the provisions of such leases, permits, rules, and regulations, then this obligation shall be null and void; otherwise, to remain in full force and effect.

The rate of premium charged on this bond is $ 2.50 per Thousand; the total premium paid is $ 38.00

Signed and sealed in the presence of—

WITNESSES:*

J. Quillin
301 N. Memorial Drive
P. O. St. Louis, Mo.

Dora D. Orbeck
301 N. Memorial Drive
P. O. St. Louis, Mo.

as to Sentry Royalty Company [SEAL]

By C. E. Starkes
President

J. Quillin
301 N. Memorial Drive
P. O. St. Louis, Mo.

Dora D. Orbeck
301 N. Memorial Dr.
P. O. St. Louis, Mo.

ATTEST:
xxxx [illegible] [SEAL]
Secretary

P. O. .....

as to ..... [SEAL]

P. O. .....

WITNESS:
By: Lucile McFatridge
301 W. 11th St., Kansas City, Mo.

By: Lucile Masters
301 W. 11th St., Kansas City, Mo.

COMMERCIAL UNION INSURANCE COMPANY OF NEW YORK
Surety

as to By: Robert A. Soderland [SEAL]
Robert A. Soderland, Attorney-in-fact

* Witnesses to all signatures.

Norman K. Stevens, Vice President

Alexander & Alexander

Alexander & Alexander Inc.
P. O. Box 19182
Kansas City, Missouri 64141
Telephone 816 391-1000

To

PEABODY HOLDING COMPANY INC
JAMES J BRITTAIN
P O BOX 373
ST LOUIS MO 63166

Terms: Payment is due as of effective date of insurance coverage

Insured	Invoice Date
PEABODY COAL COMPANY	05 02 86

Effective	Expiration	Account No.	Invoice No.
05 13 86	05 13 92	6599262	233322

Insurance

LICENSE PERMIT BOND — R LANGE
COLLECTIVE BOND - USA
INDIAN-HOPI INDIANS - ARIZONA

Policy Number	Insuring Company	Premium
400FN6323 #5743	ST PAUL	100.00

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

Bond No. 57 06 97

COLLECTIVE BOND

KNOW ALL MEN BY THESE PRESENTS, That we, Sentry Royalty Company

a Nevada corporation of St. Louis, Missouri, as principal,

and COMMERCIAL UNION INSURANCE COMPANY OF NEW YORK

of New York, as surety, are held and firmly bound unto the United States of America in the sum of fifteen thousand dollars ($15,000), lawful money of the United States, for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this 13th day of May, 1966

The condition of this obligation is such that whereas the said principal, as lessee, has heretofore or may hereafter enter into or otherwise acquire an interest in coal mining leases and prospecting permits on the Navajo-Hopi Reservation in the State of Arizona of various dates and periods of duration, covering lands or interests in lands held by the United States in trust for individual Indians, or bands or tribes of Indians, or subject to restrictions against alienation without the consent of the Secretary of the Interior, or his authorized representative, which leases and permits have been or may hereafter be granted or approved by the Secretary of the Interior, or his authorized representative, and the identification of which herein is expressly waived by both principal and surety hereto.

WHEREAS the principal and surety agree that the coverage of this bond shall extend to and include all extensions and renewals of the leases and permits covered by this bond, such coverage to continue without any interruption due to the expiration of the term set forth therein.

WHEREAS the surety hereby waive any right to notice of any modification of any such lease or permit, or obligation thereunder whether effected by extension of time for performance, by commitment of such lease to unit, cooperative, or communitization agreement, by waiver, suspension, or change in rental, except an increase thereof, by minimum royalty payment, except an increase thereof, by compensatory royalty payment, or otherwise, this bond to remain in full force and effect notwithstanding.

WHEREAS the principal and surety agree that the neglect or forbearance of any obligee under this bond in enforcing the payment of any rental or royalty or the performance of any other covenant, condition, or agreement of any such lease or permit shall not in any way release the principal and surety, or either of them, from any liability under this bond; and

WHEREAS the principal and surety agree that in the event of any default under any such lease or permit, the obligee may prosecute any claim, suit, action, or other proceeding against the principal and surety, or either of them, without the necessity of joining the other.

Now, if the said principal.... herein shall faithfully carry out and observe all the obligations assumed such leases and permits to which Sentry Royalty Company is now or may hereafter become a party, and shall observe all the laws of the United States and regulations made, or which shall be made thereunder, for the government of trade and intercourse with Indian tribes, and all rules and regulations that have been or shall hereafter be lawfully prescribed by the Secretary of the Interior relative to such mining leases and permits, and shall in all particulars comply with the provisions of such leases, permits, rules, and regulations, then this obligation shall be null and void; otherwise, to remain in full force and effect.

The rate of premium charged on this bond is $ 2.50 per Thousand; the total premium paid is $ 38.00

Signed and sealed in the presence of—

WITNESSES:*

P. O. 301 N. Memorial Drive St. Louis Mo.

P. O. 301 N. Memorial Dr. St Louis, Mo.

as to Sentry Royalty Company [SEAL]

By [signature] President

ATTEST:

[signature] Secretary

as to [SEAL]

P. O. 301 N. Memorial Drive St. Louis Mo.

P. O. Irma D. Onken 301 N. Memorial Dr. St. Louis, Mo.

P. O.

as to [SEAL]

P. O.

WITNESS:

301 West 11th St., Kansas City, Mo.

301 West 11th St., Kansas City, Mo.

COMMERCIAL UNION INSURANCE COMPANY OF NEW YORK Surety

as to By: [signature] [SEAL]
Robert A. Soderland, Attorney-in-fact

* Witnesses to all signatures.

Alexander & Alexander
Kansas City, Missouri 64141
Telephone 816 391-1000

To

PEABODY HOLDING COMPANY INC
JAMES J BRITTAIN
P O BOX 373
ST LOUIS MO 63166.

Terms: Payment is due as of effective date of insurance coverage

Insured	Invoice Date
SAME AS ABOVE	05 02 86

Effective	Expiration	Account No.	Invoice No.
05 13 86	05 13 92	6599262	233316

Insurance

LICENSE PERMIT BOND R LANGE
COLLECTIVE BOND - USA
INDIAN-HOPI INDIANS - ARIZONA - 15.000

Policy Number	Insuring Company	Premium
400FN6325	ST PAUL	100.00
#5943		

This bond is to replace Commercial Union Insurance Company Bond No.

Form 5-154 f
October 1958

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

Bond No: 400FN 6325

COLLECTIVE BOND

KNOW ALL MEN BY THESE PRESENTS, That we, Peabody Coal Company of St. Louis, Missouri, as principal, and St. Paul Fire and Marine Insurance Company of St. Paul, Minnesota, as surety, are held and firmly bound unto the United States of America in the sum of fifteen thousand dollars ($15,000), lawful money of the United States, for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this 13th day of May, 19 80

The condition of this obligation is such that whereas the said principal, as lessee, has heretofore or may hereafter enter into or otherwise acquire an interest in coal mining leases and prospecting permits on the Navajo-Hopi Reservation in the State of Arizona of various dates and periods of duration, covering lands or interests in lands held by the United States in trust for individual Indians, or bands or tribes of Indians, or subject to restrictions against alienation without the consent of the Secretary of the Interior, or his authorized representative, which leases and permits have been or may hereafter be granted or approved by the Secretary of the Interior, or his authorized representative, and the identification of which herein is expressly waived by both principal and surety hereto.

WHEREAS the principal and surety agree that the coverage of this bond shall extend to and include all extensions and renewals of the leases and permits covered by this bond, such coverage to continue without any interruption due to the expiration of the term set forth therein.

WHEREAS the surety hereby waive any right to notice of any modification of any such lease or permit, or obligation thereunder whether effected by extension of time for performance, by commitment of such lease to unit, cooperative, or communitization agreement, by waiver, suspension, or change in rental, except an increase thereof, by minimum royalty payment, except an increase thereof, by compensatory royalty payment, or otherwise, this bond to remain in full force and effect notwithstanding.

WHEREAS the principal and surety agree that the neglect or forbearance of any obligee under this bond in enforcing the payment of any rental or royalty or the performance of any other covenant, condition, or agreement of any such lease or permit shall not in any way release the principal and surety, or either of them, from any liability under this bond; and

WHEREAS the principal and surety agree that in the event of any default under any such lease or permit, the obligee may prosecute any claim, suit, action, or other proceeding against the principal and surety, or either of them, without the necessity of joining the other.

Now, if the said principal.... herein shall faithfully carry out and observe all the obligations assumed in such leases and permits to which ..... Peabody Coal Company ..... is now or may hereafter become a party, and shall observe all the laws of the United States and regulations made, or which shall be made thereunder, for the government of trade and intercourse with Indian tribes, and all rules and regulations that have been or shall hereafter be lawfully prescribed by the Secretary of the Interior relative to such mining leases and permits, and shall in all particulars comply with the provisions of such leases, permits, rules, and regulations, then this obligation shall be null and void; otherwise, to remain in full force and effect.

The rate of premium charged on this bond is $.....; the total premium paid is $.... Neg. .....

Signed and sealed in the presence of—

WITNESSES:*

(1) .....

P. O. ..... } as to PEABODY COAL COMPANY ..... [SEAL]

(1) .....

P. O. .....

.....

P. O. ..... } as to J. F. Hobbs ..... [SEAL]
Vice President, Resource Management

.....

P. O. .....

ST. PAUL FIRE AND MARINE INSURANCE COMPANY

(1) .....

P. O. 13647, K. C., Missouri 64199 BY: ..... [SEAL]
Sue Camarillo, Attorney-in-fact

.....

(2) P. O. 13647, K.C., Missouri 64199

.....

P. O. ..... } as to ..... [SEAL]

.....

P. O. .....

*Two witnesses to all signatures.

Ate & Alexander

P. O. Box 19162
Kansas City, Missouri 64141
Telephone 816 391-1000

To

PEABODY HOLDING COMPANY INC
JAMES J BRITTAIN
P O BOX 373
ST LOUIS MO 63166

Terms: Payment is due as of effective date of insurance coverage

Insured	Invoice Date
PEABODY COAL COMPANY	05 03 86

Effective	Expiration	Account No.	Invoice No.
05 13 86	05 13 92	6599262	233318

Insurance

LICENSE PERMIT BOND — R LANGE
COLLECTIVE BOND - USA 15.000
INDIAN-HOPI INDIANS - ARIZONA

Policy Number	Insuring Company	Premium
400FN6349	ST PAUL	100.00
#9910		

Form 5-154 C.
October 1958

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

Copy Morningstar

COLLECTIVE BOND

Bond No. 57 06 99

KNOW ALL MEN BY THESE PRESENTS, That we, Sentry Royalty Company, a Nevada corporation of St. Louis, Missouri, as principal, and COMMERCIAL UNION INSURANCE COMPANY OF NEW YORK of New York, as surety, are held and firmly bound unto the United States of America in the sum of fifteen thousand dollars ($15,000), lawful money of the United States, for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this 13th day of May, 19 66

The condition of this obligation is such that whereas the said principal, as lessee, has heretofore or may hereafter enter into or otherwise acquire an interest in coal mining leases and prospecting permits on the Navajo-Hopi Reservation in the State of Arizona various dates and periods of duration, covering lands or interests in lands held by the United States in st for individual Indians, or bands or tribes of Indians, or subject to restrictions against alienation without the consent of the Secretary of the Interior, or his authorized representative, which leases and permits have been or may hereafter be granted or approved by the Secretary of the Interior, or his authorized representative, and the identification of which herein is expressly waived by both principal and surety hereto.

WHEREAS the principal and surety agree that the coverage of this bond shall extend to and include all extensions and renewals of the leases and permits covered by this bond, such coverage to continue without any interruption due to the expiration of the term set forth therein.

WHEREAS the surety hereby waive any right to notice of any modification of any such lease or permit, or obligation thereunder whether effected by extension of time for performance, by commitment of such lease to unit, cooperative, or communitization agreement, by waiver, suspension, or change in rental, except an increase thereof, by minimum royalty payment, except an increase thereof, by compensatory royalty payment, or otherwise, this bond to remain in full force and effect notwithstanding.

WHEREAS the principal and surety agree that the neglect or forbearance of any obligee under this bond in enforcing the payment of any rental or royalty or the performance of any other covenant, condition, or agreement of any such lease or permit shall not in any way release the principal and surety, or either of them, from any liability under this bond; and

WHEREAS the principal and surety agree that in the event of any default under any such lease or permit, the obligee may prosecute any claim, suit, action, or other proceeding against the principal and surety, or either of them, without the necessity of joining the other.

Now, if the said principal.... herein shall faithfully carry out and observe all the obligations assumed such leases and permits to which .....Sentry Royalty Company..... is now or may hereafter become a party, and shall observe all the laws of the United States and regulations made, or which shall be made thereunder, for the government of trade and intercourse with Indian tribes, and all rules and regulations that have been or shall hereafter be lawfully prescribed by the Secretary of the Interior relative to such mining leases and permits, and shall in all particulars comply with the provisions of such leases, permits, rules, and regulations, then this obligation shall be null and void; otherwise, to remain in full force and effect.

The rate of premium charged on this bond is $ 2.50 per Thousand; the total premium paid is $ 38.00

Signed and sealed in the presence of—

WITNESSES:*

J. P. Wilson
304 N. Memorial Drive
P. O. St. Louis, Mo.

Jones D. Onkey
301 N. Memorial Dr.
P. O. St. Louis, Mo.

as to Sentry Royalty Company [SEAL]

By H. L. Stokes
President

J. P. Wilson
301 N. Memorial Drive
P. O. St. Louis, Mo.

Jones D. Onkey
301 N. Memorial Dr.
P. O. St. Louis, Mo.

ATTEST:

as to [illegible] [SEAL]
Secretary

P. O. .....

as to ..... [SEAL]

P. O. .....

WITNESS:

By: Julia McFarland
301 W. 11th St., Kansas City, Mo.

By: Lucille Hansen
301 W. 11th St., Kansas City, Mo.

COMMERCIAL UNION INSURANCE COMPANY OF NEW YORK
Surety

as to By: Robert A. Soderland [SEAL]
Robert A. Soderland, Attorney-in-fact

* Two witnesses to all signatures.

ATTACHMENT NO. 24-7

OSMRE 3/12/92 Bond Adjustment

Revised 05/09/92

OSMRE 3/12/90

Bond Adjustment Summary

Reason for Adjustment: To include additional topsoil replacement cost within the 500-foot highwall advance area. Peabody's (1/16/90) request was submitted to OSMRE and on 3/12/90, OSMRE telecopied the revised bond estimate summary.

DIRECT COSTS	PCC (1/16/90)	OSMRE (3/12/90)
1. Total Facilities and Structure Removal Cost	$14,327,389	$14,327,389
2. Total Earthmoving Cost for Final Pit and Ramp Area	9,767,381	9,767,381
3. Topsoil Replacement	4,075,869	7,202,832
4. Total Revegetation Cost	3,343,506	3,343,506
5. Total Other Reclamation	5,373,038	5,373,038
TOTAL DIRECT COSTS	$36,887,183	$40,014,146
INDIRECT COSTS		
6. Mobilization and Demobilization (1% of Direct Costs)	$ 368,872	$ 400,141
7. Contingencies (5% of Direct Cost)	1,844,359	2,000,707
8. Engineering Redesign (2.8% of Direct Cost)	1,032,841	1,120,396
9. Contractor Profit and Overhead (4.4/4.2% of Direct Cost)	1,623,036	1,680,594
10. Reclamation Management Fee	922,180	960,340
TOTAL INDIRECT COSTS	$ 5,791,288	$ 6,162,178
TOTAL RECLAMATION COST	$42,678,471	$46,176,324

Revised 05/21/92

ATTACHMENT NO. 24-8

OSMRE 4/9/92 Bond Adjustment

Revised 05/29/92

OSMRE 4/9/92

Bond Adjustment Summary

Reason for Adjustment: To include the topsoil replacement and revegetation cost for the 500-foot to 1500-foot highwall advance area in all active mine areas.

DIRECT COSTS	OSMRE (4/9/92)
1. Total Facilities and Structure Removal Cost	$14,327,389
2. Total Earthmoving Cost for Final Pit and Ramp Area	9,767,381
3. Topsoil Replacement	9,123,076
4. Total Revegetation Cost	4,390,871
5. Total Other Reclamation	5,373,038
TOTAL DIRECT COSTS	$42,981,755

INDIRECT COSTS	
6. Mobilization and Demobilization (1% of Direct Cost)	$ 429,818
7. Contingencies (4% of Direct Cost)	1,719,270
8. Engineering Redesign (2.6% of Direct Cost)	1,117,526
9. Contractor Profit and Overhead (3.8% of Direct Cost)	1,633,307
10. Reclamation Management Fee (2.2% of Direct Cost)	945,599
TOTAL INDIRECT COSTS	$ 5,845,520
TOTAL RECLAMATION COSTS	$48,827,275

Revised 05/29/92

Mine Area J-7

Project Topsoil Replacement

Task Topsoil Graded Spoil in the 500' to 1500' Highwall Advance Area

WORKSHEET NO. J-7-11a

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul topsoil from stockpiles to regraded spoil

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

See VEHSIM tables

Cycle time = 1.0 (load time) min + 0.72 (loaded trip time) min + 1.0 (maneuver and spread time) min + 0.92 (return trip time) min = 3.64 min

Cycles/Hour = 50 min/hr (work hour factor) - _____ min/cycle (See VEHSIM Tables) = _____ cycles/hr

Hourly Production = _____ yd_ (adjusted load) x _____ cycles/hr (See VEHSIM Tables) = _____ yd_/hr

Volume to be Handled = (5250 ft. x 1000 ft. x 1.25 ft)/27 ft^3/yd^3 = 243,056 yd^3

Additional Hours Required = (243,056 yd^3 (volume to be handled) / 330.2 yd^3/hr (net hourly production)) x 1.143 = 841 hrs

Additional Revegetation Area = (5250 ft. x 1000 ft)/43560 ft^2/ac = 121 ac.

References: Cat VEHSIM
See Attachment 24-5

Revised 05/29/92

Mine Area J-16

Project Topsoil Replacement

Task Topsoil Graded Spoil in the 500' to 1500' Highwall Advance Area

WORKSHEET NO. J-16-11a

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul topsoil from stockpiles to regraded spoil

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

See VEHSIM tables

Cycle time = 1.0 min (load time) + 0.72 min (loaded trip time) + 1.0 min (maneuver and spread time) + 0.92 min (return trip time) = 3.64 min

Cycles/Hour = 50 min/hr (work hour factor) - _____ min/cycle = _____ cycles/hr

(See VEHSIM Tables)

Hourly Production = _____ yd (adjusted load) x _____ cycles/hr = _____ yd/hr

(See VEHSIM Tables)

Volume to be Handled = (9500 ft. x 1000 ft. x 1.25 ft)/27 ft^3/yd^3 = 439,815 yd^3

Additional Hours Required = (439,815 yd^3 (volume to be handled) / 509.8 yd^3/hr (net hourly production)) x 1.143 = 986 hrs

Additional Revegetation Area = (9500 ft. x 1000 ft)/43560 ft^2/ac = 218 ac.

References: Cat VEHSIM
See Attachment 24-5

Revised 05/29/92

Mine Area J-19

Project Topsoil Replacement

Task Topsoil Graded Spoil in the 500' to 1500' Highwall Advance Area

WORKSHEET NO. J-19-11a

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul topsoil from stockpiles to regraded spoil

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

See VEHSIM tables

Cycle time = 1.0 min (load time) + 0.72 min (loaded trip time) + 1.0 min (maneuver and spread time) + 0.92 min (return trip time) = 3.64 min

Cycles/Hour = 50 min/hr (work hour factor) - _____ min/cycle = _____ cycles/hr
(See VEHSIM Tables)

Hourly Production = _____ yd_ (adjusted load) x _____ cycles/hr = _____ yd_/hr
(See VEHSIM Tables)

Volume to be Handled = (10,500 ft. x 1000 ft. x 1.25 ft)/27 ft^3/yd^3 = 486,111 yd^3

Additional Hours Required = (486,111 yd^3 (volume to be handled) / 271.6 yd^3/hr (net hourly production)) x 1.143 = 2046 hrs

Additional Revegetation Area = (10,500 ft. x 1000 ft)/43560 ft^2/ac = 241 ac.

References: Cat VEHSIM
See Attachment 24-5

Revised 05/29/92

Mine Area J-21

Project Topsoil Replacement

Task Topsoil Graded Spoil in the 500' to 1500' Highwall Advance Area

WORKSHEET NO. J-21-11a

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul topsoil from stockpiles to regraded spoil

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

See VEHSIM tables

Cycle time = 1.0 min (load time) + 0.72 min (loaded trip time) + 1.0 min (maneuver and spread time) + 0.92 min (return trip time) = 3.64 min

Cycles/Hour = 50 min/hr (work hour factor) ÷ _____ min/cycle = _____ cycles/hr

(See VEHSIM Tables)

Hourly Production = _____ yd_ (adjusted load) x _____ cycles/hr = _____ yd_/hr

(See VEHSIM Tables)

Volume to be Handled = (18,500 ft. x 1000 ft. x 1.25 ft)/27 ft^3/yd^3 = 856,481 yd^3

Additional Hours Required = (856,481 yd^3 (volume to be handled) / 231.4 yd^3/hr (net hourly production)) x 1.143 = 4231 hrs

Additional Revegetation Area = (18,500 ft. x 1000 ft)/43560 ft^2/ac = 425 ac.

References: Cat VEHSIM
See Attachment 24-5

Revised 05/29/92

Mine Area N-6

Project Topsoil Replacement

Task Topsoil Graded Spoil in the 500' to 1500' Highwall Advance Area

WORKSHEET NO. N-6-11a

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul topsoil from stockpiles to regraded spoil

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

See VEHSIM tables

Cycle time = 1.0 min (load time) + 0.72 min (loaded trip time) + 1.0 min (maneuver and spread time) + 0.92 min (return trip time) = 3.64 min

Cycles/Hour = 50 min/hr (work hour factor) - _____ min/cycle = _____ cycles/hr

(See VEHSIM Tables)

Hourly Production = _____ yd_ (adjusted load) x _____ cycles/hr = _____ yd_/hr

(See VEHSIM Tables)

Volume to be Handled = (17,000 ft. x 1000 ft. x 1.25 ft)/27 ft^3/yd^3 = 787037 yd^3

Additional Hours Required = (787,037 yd^3 (volume to be handled) / 319.8 yd^3/hr (net hourly production)) x 1.143 = 2813 hrs

Additional Revegetation Area = (17,000 ft. x 1000 ft)/43560 ft^2/ac = 390 ac.

References: Cat VEHSIM
See Attachment 24-5

Revised 05/29/92

Mine Area N-14

Project Topsoil Replacement

Task Topsoil Graded Spoil in the 500' to 1500' Highwall Advance Area

WORKSHEET NO. N-14-6a

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul topsoil from stockpiles to regraded spoil

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

See VEHSIM tables

Cycle time = 1.0 min (load time) + 0.72 min (loaded trip time) + 1.0 min (maneuver and spread time) + 0.92 min (return trip time) = 3.64 min

Cycles/Hour = 50 min/hr (work hour factor) - _____ min/cycle = _____ cycles/hr
(See VEHSIM Tables)

Hourly Production = _____ yd_ (adjusted load) x _____ cycles/hr = _____ yd_/hr
(See VEHSIM Tables)

Volume to be Handled = (1,500 ft. x 1000 ft. x 1.25 ft)/27 ft^3/yd^3 = 69,444 yd^3

Additional Hours Required = (69,444 yd^3 (volume to be handled) / 304.7 yd^3/hr (net hourly production)) x 1.143 = 261 hrs

Additional Revegetation Area = (1,500 ft. x 1000 ft)/43560 ft^2/ac = 34 ac.

References: Cat VEHSIM
See Attachment 24-5

Revised 05/29/92

Mine Area N-14E

Project Topsoil Replacement

Task Topsoil Graded Spoil in the 500' to 1500' Highwall Advance Area

WORKSHEET NO. N-14E-6a

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul topsoil from stockpiles to regraded spoil

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

See VEHSIM tables

Cycle time = 1.0 min (load time) + 0.72 min (loaded trip time) + 1.0 min (maneuver and spread time) + 0.92 min (return trip time) = 3.64 min

Cycles/Hour = 50 min/hr (work hour factor) ÷ _____ min/cycle = _____ cycles/hr

(See VEHSIM Tables)

Hourly Production = _____ yd (adjusted load) x _____ cycles/hr = _____ yd/hr

(See VEHSIM Tables)

Volume to be Handled = (3,400 ft. x 1000 ft. x 1.25 ft)/27 ft^3/yd^3 = 157,407 yd^3

Additional Hours Required = (157,407 yd^3 (volume to be handled) / 520.1 yd^3/hr (net hourly production)) x 1.143 = 346 hrs

Additional Revegetation Area = (3,400 ft. x 1000 ft)/43560 ft^2/ac = 78 ac.

References: Cat VEHSIM
See Attachment 24-5

Revised 05/29/92

Topsoil Replacement in the
500' to 1500' Highwall
Advance Area Summary

Mine Area	Additional Yardage (yd^3)	Additional Equipment Hrs.	Equip & Labor Cost/Hr.	Topsoil Replacement Cost
J-7	243,056	841	$166.63	$140,136
J-16	439,815	986	166.63	164,297
J-19	486,111	2046	166.63	340,925
J-21	856,481	4231	166.63	705,012
N-6	787,037	2813	166.63	468,730
N-14	69,444	261	166.63	43,490
N-14E	157,407	346	166.63	57,654
Total	3,039,351	11,524		$1,920,244

Revised Topsoil Replacement Cost = $7,202,832 + $1,920,244 = $9,123,076

Revised 05/29/92

Reve[illegible] Costs in the
[illegible] 00 [illegible]ngwall [illegible]
[illegible]vance Area Summary

Mine Area	Revegetation [illegible]	Cost per Acre	Revegetation Cost
J-7	121	$ 695.00	$ 84,095
[illegible]	[illegible]8	6[illegible]	151,510
J-[illegible]	[illegible]	[illegible].00	[illegible]7,495
[illegible]	[illegible]	695.[illegible]	[illegible],375
[illegible]6	[illegible]0	695.[illegible]	[illegible]71,[illegible]
[illegible]	[illegible]	695.[illegible]	25,630
[illegible]	[illegible]8	695.00	[illegible],210
Total	[illegible]		$[illegible],047,365

Revised Reveg tation Cost = $[illegible],343,506 + $[illegible],[illegible],365 = $4,390,871

Revised 05/29/92

ATTACHMENT NO. 24-9

N-11 Facilities Area Bond Adjustment

Revised 09/18/92

N-11 FACILITIES AREA

BOND ADJUSTMENT

I. **RECLAIM FACILITIES AREA**

A. **Surface Removal (Coal Stockpile and Truck Ready Line):**

Referring to drawing 85482, calculations show that there are 20.14 acres within the N-11 facilities area that will need to have the top 1 foot of material removed and buried. Also this area is to be ripped to a depth of 3 feet. The cost associated with these tasks is estimated to be $19,079.

B. **Earthmoving Required to Achieve Postmining Contours:**

A volume analysis was performed by OSM using the Interactive Surface Modeling (ISM) software. Surfaces were generated using data taken from proposed N-11 facilities contours (drawing 85482) and postmining contours (drawing 85352). The postmining surface was adjusted down in elevation by 15 inches to account for topsoil removal. The volume of cut required to meet postmining topography before topsoiling is 1,081,858 LCY. The swell factor used in calculating this volume was 25%. The fill volume needed to achieve postmining contours is 422,795 cubic yards, this figure has been adjusted using a bulking factor of 15%. Subtracting the above fill volume from the cut volume yields an excess of 659,063 cubic yards. OSM assumed an average haul distance of 3,000 feet to dispose of this material. The cost to remove this material is estimated to be $300,100.

Also, since a total of 422,795 cubic yards of material will have to be moved to meet postmining contours, an average push distance of 400 feet was used to calculate a cost for this activity. The estimated cost is $132,165.

C. **Grading:**

The estimated cost to grade and blend material on 89 acres is $5,435.

D. **Topsoiling:**

A total of 178,273 cubic yards will be required to cover 89 acres with 15 inches of topsoil. It is estimated that 85,103 cubic yards of topsoil will be salvaged during construction of the N-11 facilities area. It is assumed that this material will be stockpiled within 3,000 feet of the facilities area. It was also assumed that the additional 93,170 cubic yards of topsoil that is required for reclamation is within 3,000

feet of the N-11 facilities area. The cost associated with topsoiling the N-11 facilities area is $81,149.

E. **Revegetation:**

The area to be revegetated is 89 acres. The revegetation cost is $833.91 per acre. This figure includes a cost for a 20 percent failure rate. Revegetation cost for the N-11 facilities area is $73,717.

II. ROADS

It was determined from drawing 85482 that there are 600 feet of ancillary road and 3,534 feet of haul road contained within the N-11 facilities area. The estimated cost to remove surface material and rip subgrade for these roads is $3,670.

III. SUPPORT EQUIPMENT

A water wagon and a 14G motor grader were costed for support equipment. It was assumed that this equipment would be required for a total of five weeks. The estimated cost is $28,582.

BOND ADJUSTMENT SUMMARY

DIRECT COSTS:

I.	Reclaim Facilities Area		
	A. Surface Removal	$ 19,079	
	B. Earthmoving for PMT	432,265	
	C. Finish Grading	5,435	
	D. Topsoil Replacement	81,149	
	E. Revegetation	73,717	
	TOTAL		$ 611,645
II.	Roads		3,670

III. Support Equipment	28,582
TOTAL DIRECT COSTS	$ 643,897

INDIRECT COSTS

Percentages used for this bond category were taken from the approved permit due to the fact that reclamation for this area would be part of a larger reclamation effort.

Engineering Redesign Fee .....$ 18,029
(2.8% of Direct Costs)

Contractor Profit and Overhead..... 28,331
(4.4% of Direct Costs)

Contingencies..... 25,756
(4% of Direct Costs)

Reclamation Management Fee..... 16,097
(2.5% of Direct Costs)

Mobilization and Demobilization..... 0
(Since the reclamation of the N-11 facilities area is a very small portion of a much larger area, there will be negligible costs associated with this category)

Total Indirect Costs.....$ 88,213

Estimated reclamation cost for the N-11 facilities area is $732,110.

ATTACHMENT 24-10

J-19 Topsoil Stockpiles Bond Adjustment

J-19 Topsoil Stockpiles

Bond Adjustment Summary

Reason for Adjustment: To include reclamation of 76 additional acres where additional J-19 topsoil stockpiles are proposed.

Direct Costs:			
1.	Total Revegetation Cost	$ 63,400	
	Total Direct Costs	63,400	
Indirect Costs:			
1.	Mobilization and Demobilization (1% of Direct Cost)	$ 634	
2.	Contingencies (4% of Direct Cost)	$ 2,536	
3.	Engineering Redesign (2.7% of Direct Cost)	$ 1,712	
4.	Contractor Profit and Overhead (4.0% of Direct Cost)	$ 2,536	
5.	Reclamation Management Fee (2.4% of Direct Cost)	$ 1,522	
	TOTAL INDIRECT COSTS	$ 8,940 =	$ 9,000
	TOTAL RECLAMATION COST		$ 72,400

Mine Area J-19

Project Reveg.-Topsoil Stockpiles

Task Revegetation

ATTACHMENT 24-3

WORKSHEET NO. J-19-13a

REVEGETATION COSTS

Name and Description of Area to be Revegetated:

J-19 Topsoil Stockpiles Area

Description of Revegetation Activities:

Additional Area = 76 ac.

Reseeding:

76 (# of acres to be reseeded) acres x ($ 40.00 ($/acre for seedbed preparation) per acre + $ 630.00 ($/acre for seeding, fertilizing, and mulching) per acre) = $ 50,920 (costs for reseeding)

Planting Trees and Shrubs:

76 (# of acres for planting) acres x $ 25 ($/acre for planting trees and shrubs) per acre = $ 1,900 (costs for planting)

Other Revegetation Activity for this Area (e.g., Soil Sampling):

(Describe and provide cost estimate with documentation; use additional sheets if necessary.)

Total Cost = $52,820 + 20% failure

Total Revegetation Cost for This Area = $63,400

References: PCC Actual Costs
Granite Seed Co

CHAPTER 24

BONDING

ATTACHMENT 24-11

N-11 Mine Area Bond Adjustment

N-11 Mine Area
Bond Adjustment

Reason for Adjustment: The 03/08/90 bond estimate only assumed 304 acres of mine area was disturbed with topsoil removal; whereas, the revised mine plan has shifted opening the box cut pit into the "worst case" year, 1994. This requires a revised bond calculation. In the revised N-11 bond calculation, the "worst case" scenario was assumed for the N-11 mine area including the following:

1. 11,400 feet of open pit;
2. Four spoil ridge plus a box cut spoil with a total overburden, interburden, and coal removal depth of 125 feet;
3. Reclamation of six ramps which include all primary road spurs;
4. Reclamation of all proposed topsoil stockpiles, temporary sedimentation ponds, and powerline areas;
5. All other support facilities, exterior roads outside the N-11 mine area, and support equipment are included in the previously approved bond calculations;
6. There is no pre-1994 revegetation maintenance cost required for N-11.

N-11 Mine Area

Cost Summary

DIRECT COSTS

Pit Area:		
Highwall Reduction (Blasting)	=	$330,500
Doze Highwall Material	=	735,400
Doze Adjacent Two Spoils	=	396,300
Grade Back Two Spoils & Box Cut Spoil	=	851,800
Ramp Grading	=	386,200
Surface Stabilization	=	60,900
Topsoil Replacement	=	1,508,800
Revegetation - Pit Area	=	649,700
Revegetation - Topsoil Stockpiles	=	70,900
		4,990,500
Facilities Area:		
Sedimentation Ponds	=	112,000
Powerlines	=	6,000
Total Facilities Area	=	118,000
Total Direct Costs	=	$5,108,500
Less 03/08/90 N-11 Direct Cost	=	- 661,750
Total Additional Bond Direct Cost	=	$4,446,750

Updating total direct costs into current bond costs:

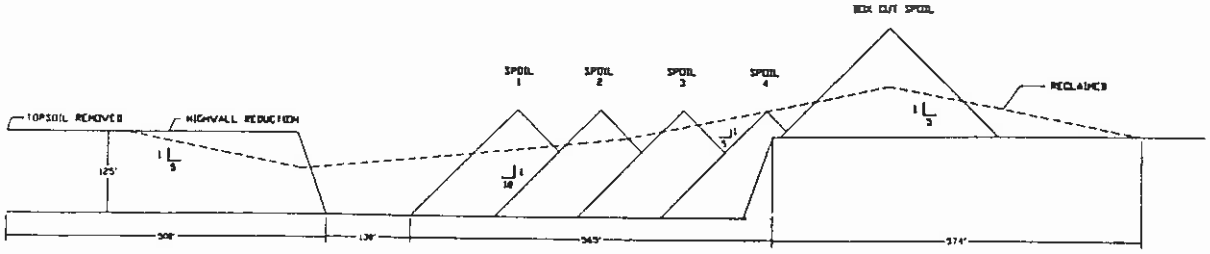
CCI (01/04/93) = 5070.66 vs. CCI 03/08/90 = 4700.67

Total Direct Cost (01/04/93) = 4,446,750 x 1.0787 = $4,796,700

Mine Area: N-11
Project Open Pit Backfilling
Task Open Pit Backfilling

WORKSHEET NO. N-11-1

EARTHWORK QUANTITY WORKSHEET



Highwall Reduction

Area = 7,643 sq. ft. (digitized area)
Pit Length = 11,400 ft.
Volume = 3,227,000 cu. yd. (for drilling and shooting)
Volume (including 25% swell) = 4,033,800 cu. yd. (for dozing)

Spoil to Open Pit

Spoil 1, 2 = 6,249 sq. ft. x 11,400 ft. = 2,638,500 cu. yd.

Spoil Grading

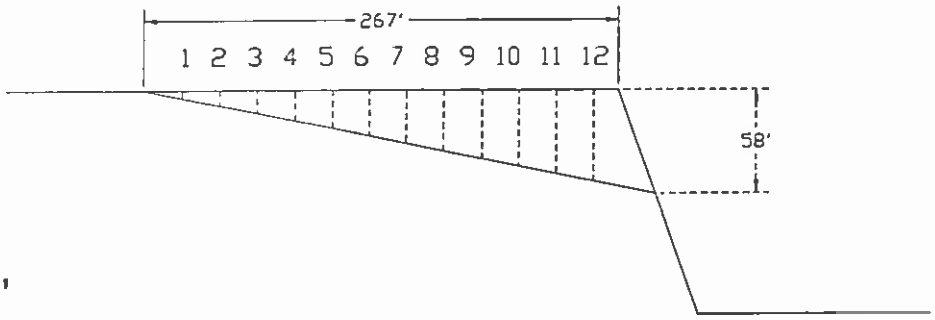
Spoil 3, 4 and Box Cut Spoil = 11,143 sq. ft. x 11,400 ft. =
4,704,800 cu. yd.

Mine Area N-11
Project Highwall Reduction
Task Drill & Shoot Highwall

WORKSHEET NO. N-11-2

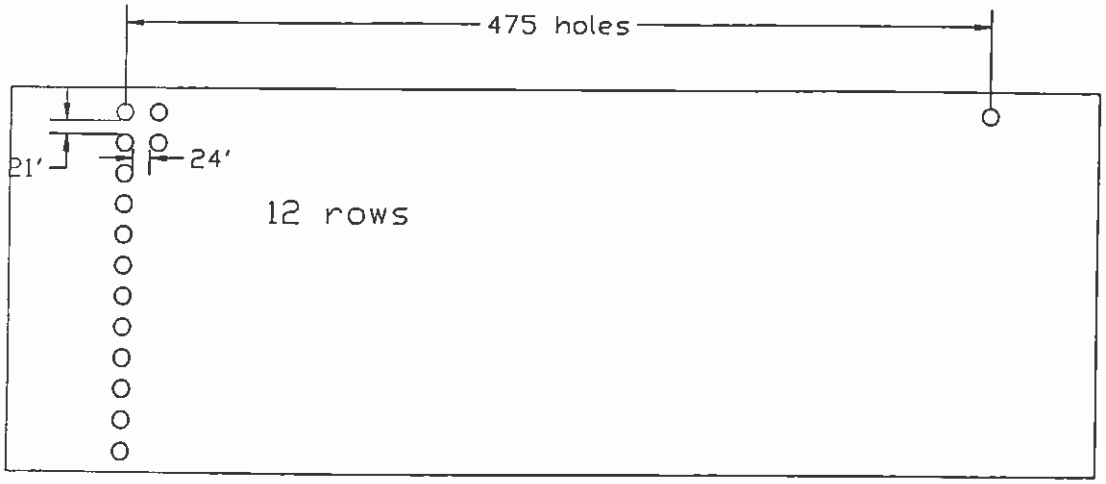
OTHER RECLAMATION ACTIVITY COSTS

Cost Estimate Calculations:



Drill Pattern 21' x 24'

Drill Hole	1	2	3	4	5	6	7	8	9	10	11	12	Total
Dist. to Hiwall Face (ft)	252	231	210	189	168	147	126	105	84	63	42	21	
Drill Hole Depth (ft)	2.9	7.1	11.3	15.5	19.7	23.9	28.1	32.3	36.5	40.7	44.9	49.1	312.0
Explosives in Column (lbs)	24.4	59.6	94.9	130.2	165.5	200.8	236.0	271.3	306.6	341.9	377.2	412.4	2620.8



Revised 02/04/94

Mine Area N-11
Project Highwall Reduction
Task Drill & Shoot Highwall

WORKSHEET NO. N-11-3

OTHER RECLAMATION ACTIVITY COSTS

Descriptions of Reclamation Activity: Blasting to reduce highwall

Assumptions:			Sources:
Powder Factor	=	0.45 lb/yd	BM/KM Costs for 1988
Hole Diameter	=	9-7/8 inches	Furnished by applicant
Drill	=	Ingersoll Rand DM 50	Cost Reference Guide
Drilling Rate	=	1.6 ft/min.	BM/KM Rate for 1988
Bit Life	=	8000 ft.	Furnished by applicant
Bit Cost	=	$1200/bit	Furnished by applicant
Explosives	=	$0.10/lb.	BM/KM Costs for 1988
Drill Cost	=	$107.91/hr.	Cost Reference Guide
Blaster rate	=	$16.98 + 2.77/hr.	Bacon Davis
Driller rate	=	$16.98 + 2.77/hr.	Bacon Davis

References: Dataquest, Cost Reference Guide for Construction Equipment, 1989
U.S. Department of Labor, Davis-Bacon Wage Rates

Mine Area N-11
Project Highwall Reduction
Task Drill & Shoot Highwall

WORKSHEET NO. N-11-4

OTHER RECLAMATION ACTIVITY COSTS

Total No. Holes = $\frac{11,400'}{24'}$ = 475 Holes x 12 Rows = 5,700 Holes

Total Feet of Drilling Required	Total Amount of Explosives
312 ft/12 holes x 5700 = 148,200 ft.	2620.8 lbs/12 holes x 5700 = 1,244,880 lbs.

Avg. Drilling Rate = 1.6 ft/min.

Time = $\frac{148,200 \text{ ft.}}{1.6 \text{ ft/min} \times 60 \text{ min/hr}}$ = 1544 hrs.

Cost Estimate Calculations:

	Ownership Cost	Driller Cost	Blaster Cost
Drilling Cost	= (1544 hrx79.53/hr)	+ (1544 hrx$19.75/hr)	+ (1544x$19.75/hr)

= $183,800

18.5 bits @ $1200/bit = $22,200

Explosives: $0.10/lb. x 1,244,880 lb. = $124,488

TOTAL = $330,500

Mine Area N-11
Project Backfill Pit
Task Doze Highwall Material

WORKSHEET NO. N-11-5

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: Doze blasted highwall reduction material into pit.

Characterization of Dozer Used (type, size, etc.): D-10N, three-shank ripper, U-blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

180' Push

Productivity Calculations:

Operating Adjustment Factor = 1.0 (operator factor) x 0.8 (material factor) x 0.83 (work hour factor) x 1.4 (grade factor) x 0.82 (weight correction factor) x 1.0 (production method/blade factor)

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.69

Net Hourly Production = 1,050 (normal hourly production) yd_/hr x 0.69 (operating adjustment factor) = 725 yd_/hr

Hours Required = (4,033,800 (volume to be moved) yd_ / 725 (net hourly production) yd_/hr) x 1.143 = 6,360 hrs

References: Cat Handbook, Ed. 19
See Table 24-2-3

Mine Area N-11

Project Backfill Pit

Task Doze Adjacent 2 Spoils

WORKSHEET NO. N-11-6

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: Push 2 Adjacent Spoils into Open Pit.

Characterization of Dozer Used (type, size, etc.): D-10N, three-shank ripper, U-Blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

200' Push

Productivity Calculations:

Operating Adjustment Factor = 1.0 (operator factor) x 1.2 (material factor) x 0.83 (work hour factor) x 1.2 (grade factor) x 0.82 (weight correction factor) x 1.0 (production method/blade factor) x

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.88

Net Hourly Production = 1,000 (normal hourly production) yd_/hr x 0.88 (operating adjustment factor) = 880 yd_/hr

Hours Required = (2,638,500 (volume to be moved) yd_/ 880 (net hourly production) yd_/hr) x 1.143 = 3,427 hrs.

References: Cat Handbook, Ed. 19
See Table 24-2-3

Mine Area N-11

Project Spoil Grading

Task Grade 2 Spoils & Box Cut Spoil

WORKSHEET NO. N-11-7

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: Grade the Back 2 Spoil Ridges and Box Cut Spoil (First 2 Spoils go into Pit)

Characterization of Dozer Used (type, size, etc.): D-10N, 3-shank ripper, U-blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

200' Push

Productivity Calculations:

Operating Adjustment Factor = 1.0 (operator factor) x 1.2 (material factor) x 0.83 (work hour factor) x 1.0 (grade factor) x 0.82 (weight correction factor) x 1.0 (production method/blade factor) x

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.73

Net Hourly Production = 1,000 (normal hourly production) yd_/hr x 0.73 (operating adjustment factor) = 730 yd_/hr

Hours Required = (4,704,800 (volume to be moved) yd_ / 730 (net hourly production) yd_/hr) x 1.143 = 7,367 hrs.

References: Cat Handbook, Ed. 19
See Table 24-2-3

Mine Area N-11

Project RAMP GRADING

Task Grade All Ramps

WORKSHEET NO. N-11-8

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: Ramp Grading

Characterization of Dozer Used (type, size, etc.): D-10N, three-shank ripper, U-Blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

Productivity Calculations:

Operating Adjustment Factor = 1.0 (operator factor) x 1.2 (material factor) x 0.83 (work hour factor) x 1.0 (grade factor) x 0.82 (weight correction factor) x 1.0 (production method/blade factor) x

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.73

Net Hourly Production = 1,000 (normal hourly production) yd_/hr x 0.73 (operating adjustment factor) = 730 yd_/hr

Hours Required = (2,133,000 (volume to be moved) yd_ / 730 (net hourly production) yd_/hr) x 1.143 = 3,340 hrs.

References: Cat Handbook, Ed. 19
See Table 24-2-4

Mine Area N-11

Project Surface Stabilization

Task Haul Riprap

WORKSHEET NO. N-11-9

PRODUCTIVITY FOR OFF ROAD TRUCKS

Earthmoving Activity: Haul riprap from pit area to drainage/downdrain area
(See Table 24-2-6)

Characterization of Truck Used (type, capacity, etc.): Cat 769C

Description of Truck Route (haul distance, % grade, etc.):

See VEHSIM tables

Cycle time = _____ min (load time) + _____ min (loaded trip time) + _____ min (maneuver and spread time) + _____ min (return trip time) = ____ min

Cycles/Hour = 50 min/hr (work hour factor) - _____ min/cycle = _____ cycles/hr

Hourly Production = _____ yd_ (adjusted load) x _____ cycles/hr = _____ yd_/hr

Hours Required = (38,800 yd_ (volume to be handled) / 124.3 yd_/hr (net hourly production)) x 1.143 = 357 hrs

Assume one 988 loader works 119 hours

References: Cat VEHSIM
See Attachment 24-5

Mine Area N-11

Project Topsoil Replacement

Task Topsoil Graded Spoil

WORKSHEET NO. N-11-10

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul topsoil from stockpiles to regraded spoil

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

See VEHSIM tables.

Cycle time = 1.0 (load time) min + 2.43 (loaded trip time) min + 1.0 (maneuver and spread time) min + 1.38 (return trip time) min = 5.81 min

Cycles/Hour = 50 min/hr (work hour factor) - _____ min/cycle = _____ cycles/hr

Hourly Production = _____ (adjusted load) yd_ x _____ cycles/hr = _____ yd_/hr

Hours Required =(2,513,600 (volume to be handled) yd_ / 317.3 (net hourly production) yd_/hr) x 1.143 = 9,055 hrs.

References: Cat VEHSIM
See Attachment 24-5

Mine Area N-11
Project Revegetation
Task Revegetate Dist. Area

WORKSHEET NO. N-11-11

REVEGETATION COSTS

Name and Description of Area to be Revegetated:

N-11 Mining area and ramps/roads beyond 4 spoil distance

Description of Revegetation Activities:

Revegetation of "worst case" disturbance area. Assume 20% failure rate.

Reseeding:

779 (# of acres to be reseeded) acres x ($ 40.00 ($/acre for seedbed preparation) per acre + $ 630.00 ($/acre for seeding, fertilizing, mulching, and fencing) per acre) = $521,900 (costs for reseeding)

Planting Trees and Shrubs: [1)]

779 (# of acres for planting) acres x $ 25 ($/acre for planting trees and shrubs) per acre = $ 19,500 (costs for planting)

Other Revegetation Activity for this Area (e.g., Soil Sampling):

(Describe and provide cost estimate with documentation; use additional sheets if necessary.)

Total Cost = 541,400 + 20% failure

TOTAL REVEGETATION COST FOR THIS AREA = $649,700

References: Peabody Actual Costs
Granite Seed Co.
Table 24-2-7 (Dist. Area)

Mine Area N-11
Project Reveg.-Topsoil Stockpiles
Task Revegetation

WORKSHEET NO. N-11-12

REVEGETATION COSTS

Name and Description of Area to be Revegetated:

N-11 Topsoil Stockpiles Area

Description of Revegetation Activities:

Area = 85 ac.

Reseeding:

85	acres x ($	40.00	per acre + $	630.00	per acre) = $	56,950
(# of acres to be reseeded)		($/acre for seedbed preparation)		($/acre for seeding, fertilizing, and mulching)		(costs for reseeding)

Planting Trees and Shrubs:

85	acres x $	25	per acre = $	2,130
(# of acres for planting)		($/acre for planting trees and shrubs)		(costs for planting)

Other Revegetation Activity for this Area (e.g., Soil Sampling):

(Describe and provide cost estimate with documentation; use additional sheets if necessary.)

Total Cost = $59,080 + 20% failure

Total Revegetation Cost for This Area = $70,900

References: PCC Actual Costs
Granite Seed Co

Mine Area N-11

Project Facilities-Sediment Ponds

Task Remove Embankments

WORKSHEET NO. N-11-13

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: Embankment removal (see Page 24-2-18)

Characterization of Dozer Used (type, size, etc.): D-10N, three-shank ripper, U-blade 200' push

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

Blade embankment material into surrounding drainage, pond area or sides of drainage

Productivity Calculations:

Operating Adjustment Factor = 1.0 (operator factor) x 0.8 (material factor) x 0.83 (work hour factor) x 1.2 (grade factor) x 2300/2800 (weight correction factor) x 1.0 (production method/blade factor)

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.59

Net Hourly Production = 1,000 (normal hourly production) yd_/hr x 0.59 (operating adjustment factor) = 590 yd_/hr

Hours Required = (17,400 (volume to be moved) yd_ / 590 (net hourly production) yd_/hr) x 1.143 = 34 hrs

References: Cat Handbook, Ed. 19
Drawing No. 85405

Mine Area N-11

Project Facilities-Sediment Ponds

Task Topsoil Regraded Ponds

WORKSHEET NO. N-11-14

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Replace topsoil or sediment on distrubed pond area
Disturbed area is 66 acres. Topsoil depth is 15 inches (see Page 24-2-18)

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

1000' one way
RR = 8%

Cycle time = 1.0 (load time) min + 0.97 (loaded trip time) min + 1.0 (maneuver and spread time) min + 0.69 (return trip time) min = 3.66 min

Cycles/Hour = 50 min/hr (work hour factor) ÷ _____ min/cycle = _____ cycles/hr

Hourly Production = _____ (adjusted load) yd_ x _____ cycles/hr = _____ yd_/hr

Hours Required = (133,100 (volume to be handled) yd_ / 479.0 (net hourly production) yd_/hr) x 1.143 = 318 hrs

Volume = 66 ac. x 1.25' = 82.5 ac.ft. = 133,100 cy

*
maneuver = 0.4 min
spread = 0.6 min

References: Cat VEHSIM

Mine Area N-11
Project Facilities-Sediment Ponds
Task Revegetate Ponds

WORKSHEET NO. N-11-15

REVEGETATION COSTS

Name and Description of Area to be Revegetated:

Regrade sedimentation ponds

Description of Revegetation Activities:

Revegetation of regraded pond areas

Reseeding:

66 acres x ($ 40.00 per acre + $ 630.00 per acre) = $44,220

(# of acres to be reseeded) ($/acre for seedbed preparation) ($/acre for seeding, fertilizing, mulching, and fencing) (costs for reseeding)

Planting Trees and Shrubs:

66 acres x $ 25 per acre = $ 1,650

(# of acres for planting) ($/acre for planting trees and shrubs) (costs for planting)

Other Revegetation Activity for this Area (e.g., Soil Sampling):

(Describe and provide cost estimate with documentation; use additional sheets if necessary.)

Total Cost = $45,870 + 20% failure

TOTAL REVEGETATION COST FOR THIS AREA = $55,100

References: Peabody Actual Costs
Granite Seed Co.
Table 24-2-12

Mine Area N-11

Project Facilities - Powerline

Task Remove Powerline

WORKSHEET NO. N-11-16

STRUCTURE DEMOLITION AND DISPOSAL COST SUMMARY

Listing of Powerlines to be Demolished:

Item	Length	Unit Cost Basis	Demolition Cost
1) Powerlines	1.0 miles	$4183/mi	$4,183
2) Revegetate Corridor	2.5 acres	$ 695/ac	1,738
3)			
4)			
5)			

Total Cost = $ 5,921

Assumptions: Assume Means crew R-6 removes 1 mile of powerline per day.

Powerline corridor is 20' wide x 5,350 feet = 2.5 ac.

TOTAL DEMOLITION AND DISPOSAL COST = $ 6,000

References: Means Site Work 1989
Drawing No. 85210

AREA = N11

SUMMARY

Project	Task	Equip Mnt	Equip Hrs	Labor Cost	Equip Cost	Cy Yds	Work Sheet	Hourly Cost ($)	Total Cost ($)	Cost CuYd
Backfill Pit	Doze Highwall Material	D10N	6360	$22.68	$92.95	4,033,800	N-11-5	115.63	735,406.80	0.182
Backfill Pit	Doze Adjacent 2 Spoils	D10N	3427	22.68	92.95	2,638,500	N-11-6	115.63	396,264.01	0.150
Spoil Grading	Grade Back 2 & Box Cut Spoil	D10N	7367	22.68	92.95	4,704,800	N-11-7	115.63	851,846.21	0.181
Ramp Grading	Grade All Ramps	D10N	3340	22.68	92.95	2,133,000	N-11-8	115.63	386,204.20	0.181
Sed. Pond Reclamation	Remove Embankments	D10N	34	22.68	92.95	17,400	N-11-13	115.63	3,931.42	0.226
Surf. Stabilization	Terrace Const.	D10N	73	22.68	92.95	--	TER-1	115.63	8,440.99	--
Topsoil Replacement	Topsoil Spreading	657	9055	22.68	143.95	2,513,600	N-11-10	166.63	1,508,834.65	0.600
Topsoil Replacement	Topsoil Spreading Sed. Ponds	657	318	22.68	143.95	133,100	N-11-14	166.63	52,988.34	0.398
Surface Stabilization	Haul Riprap	769C	357	21.71	46.64	38,800	N-11-9	68.35	24,400.95	0.629
Surface Stabilization	Load Riprap	988B	119	22.68	72.41	38,800	N-11-9	95.09	11,315.71	0.292
Surface Stabilization	Place Riprap	988B	143	22.68	72.41	38,800	RIP-1	95.09	13,597.87	0.350
Surface Stabilization	Terrace Construction	14G	58	22.68	31.57	--	TER-1	54.25	3,146.50	--
Highwall Reduction	Drill & Shoot Highwall	MISC	--	--	330,500.00	--	N-11-4	--	330,500.00	--
Facilities	Remove Powerlines	MISC	--	--	6,000.00	--	N-11-16	--	6,000.00	--
Revegetation	Reveg. Disturbed Pit Area	MISC	--	--	649,700.00	--	N-11-11	--	649,700.00	--
Revegetation	Reveg. TSS	MISC	--	--	70,900.00	--	N-11-12	--	70,900.00	--
Revegetation	Reveg. Sediment Ponds	MISC	--	--	55,100.00	--	N-11-15	--	55,100.00	--

Total N-11 Direct Cost: $5,108,500.00

24-11-19

Revised02/04/94

ATTACHMENT 24-12

J-19/J-21 Powerline Bond Adjustment

Revised 03/21/94

J-19/J-21 Powerline

Bond Adjustment

Reason for Adjustment: In late May, 1994, Peabody is proposing to construct approximately 2.2 miles of additional powerline to service the J-28 facilities and J-16 mine area. This requires a revised bond calculation for the "worst case" year, 1994.

Mine Area J-19/J-21

Project Facilities - Powerline

Task Remove Powerline

WORKSHEET NO. J-19/21-1

STRUCTURE DEMOLITION AND DISPOSAL COST SUMMARY

Listing of Powerlines to be Demolished:

Item	Length	Unit Cost Basis	Demolition Cost
1) Powerlines	2.2 miles	$4183/mi	$9,203
2) Revegetate Corridor	5.3 acres	$ 695/ac	3,684
3)			
4)			
5)			

Total Cost = $ 12,887

Assumptions: Assume Means crew R-6 removes 1 mile of powerline per day.

Powerline corridor is 20' wide x 11,600 feet = 5.3 ac.

TOTAL DEMOLITION AND DISPOSAL COST = $12,900

References: Means Site Work 1989
Drawing No. 85210

Updating total direct costs into current bond costs:

CCI (01/04/93) = 5070.66 vs. CCI (03/08/90) = 4700.67
Total Direct Cost (01/04/93) = $12,900 x 1.0787 = $13,900

ATTACHMENT 24-13

Off-Lease Environmental Monitoring

Sites Reclamation Liability

Revised 10/18/94

Introduction

The purpose of this reclamation liability estimate is to provide a bond estimate to reclaim approximately 16 existing environmental sites. Ten of these sites are minor sites consisting only of a single riser (e.g., alluvial monitoring well, precipitation gage, or crest gage). The remaining six sites are slightly larger and may include concrete flumes, steel sediment sampler structures, or overhead steel catwalk structures, etc. for stormwater sampling. This estimate includes removing the structures, grading and blending the disturbed area into the surrounding topography, and reclaiming and revegetating the disturbed area.

Mine Area All

Project Off Lease Env. Mont. Sites

Task Site Reclamation

WORKSHEET NO. WW-1

Environmental Monitoring Sites. Approximately 16 off-lease environmental monitoring sites will exist in 1994. The sites vary in size and disturbance area. In order to be conservative, Peabody included enough reclamation liability costs to remove the monitoring structures, grade and blend the site, assuming the entire bonding area is disturbed, and reclaim and revegetate the site. Following is a list of monitoring sites and estimated bonding area:

Site ID	Bond Area (Acres)
ALUV76R	1
ALUV77	1
ALUV94	1
ALUV95	1
ALUV102	1
ARG152	1
ARG153	1
ARG154	1
CG25	1
CG34	1
SW16	3
SW18	3
SW25	3
SW26	3
SW34	3
SW155	3
Total: 16 Sites	28 acres

Revised 10/18/94

A. Remove the six "SW" steel and concrete monitoring structures.

Volume = 6 sites x 300' x 10' x 6' = 108,000 ft^3
Structure Demolition Cost = 108,000 ft^3 x 0.17 $/ft^3$ = $18,360

B. Grading to Blend/Drain: (6 sites)

Area = 18 acres
Productivity Calculations: (D-10N, three-shank ripper, U-blade)

Operating Adjustment Factor = 0.75 (operator factor) x 0.8 (material factor) x 0.83 (work hour factor) x 1.0 (grade factor) x 2300/2900 (weight correction factor) x 1.0 (production method/blade factor) x

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.36

Hourly Production = 2 (speed) mi/hr x 17 (eff. blade width) ft x 5280 ft/mi x 1 ac/43,560 ft^2 = 4 ac/hr

Net Hourly Production = 4 (hourly production) ac/hr x 0.36 (op. adj. factor) = 1.44 ac/hr

Hours Required = (18 ac. / 1.44 ac/hr) x 1.143 = 15 hrs

Grading Cost = 15 hrs x $145.28 = $2179

Reference: Cat Handbook, Ed. 19

C. Revegetation Costs: (Includes reseeding and 20% failure, see Table 24-2-9) - 6 sites

18 acres x $834/ac = $15,012

D. Reclaim the 10 minor sites (i.e., ALUV, ARG, CG)

Area = 10 acres
Using the information on Worksheet WW-1, Page 24-4-46:
Reclamation Cost = 10 sites x $1000 = $10,000

E. Summary:

Total Reclamation Direct Cost for 16 sites:
$18,360 + $2179 + $15,012 + $10,000 = $45,600
Indirect Cost @ 11.4% (see Page 18) = 5,200

Total Reclamation Liability = $50,800

ATTACHMENT 24-14

J-19 Powerline Reclamation Liability

Revised 10/20/94

Introduction

The purpose of this reclamation liability estimate is to provide bonding cost calculations for approximately 2.5 miles of powerline and single-lane ancillary road to be constructed in 1994 to the J-19 mine area.

Mine Area Kayenta

Project Facilities:J-19 Powerline

Task Remove Powerline

WORKSHEET NO. P-4

STRUCTURE DEMOLITION AND DISPOSAL COST SUMMARY

Listing of Powerlines to be Demolished:

Item	Length	Unit Cost Basis	Demolition Cost
1) Powerlines	2.5 miles	$4750/mi	$11,875
2) Revegetate Corridor	6.1 acres	$ 695/ac	4,240
3)			
4)			
5)			

Total Cost = $ 16,115

Assumptions: Assume Means crew R-6 removes 1 mile of powerline per day.

Powerline corridor is 20' wide x 13,200 feet = 6.1 ac.

TOTAL DEMOLITION AND DISPOSAL DIRECT COST = $16,200

References: Means Site Work 1993
Drawing No. 85210

Mine Area J-19

Project Powerline-Ancillary Rds

Task Surface Removal

WORKSHEET NO. P-4a

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: Push one foot of gravel/scoria off the side of the road for burial

Characterization of Dozer Used (type, size, etc.): D-10N, three-shank ripper, U-blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

Volume = 1' deep x 20' wide x 13,200' long = 9,800 cy
Push = 50'

Productivity Calculations:

Operating Adjustment Factor = 0.75 (operator factor) x 0.8 (material factor) x 0.83 (work hour factor) x 1.0 (grade factor) x 2300/3000 (weight correction factor) x 1.0 (production method/blade factor)

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.34

Net Hourly Production = 2,800 (normal hourly production) yd^3/hr x 0.34 (operating adjustment factor) = 952 yd^3/hr

Hours Required = (9,800 (volume to be moved) yd^3 / 952 (net hourly production) yd^3/hr) x 1.143 = 12 hrs

References: Cat Handbook Ed. 19
Drawing No. 89800

Mine Area J-19

Project Powerline-Ancillary Rds

Task Rip Subgrade

WORKSHEET NO. P-4b

PRODUCTIVITY AND HOURS REQUIRED FOR RIPPER-EQUIPPED DOZER USE

Ripping Activity: After surface material is removed, rip to a depth of three feet to aid in plant growth

Characterization of Dozer and Ripper Used: D-10N, Three shank ripper, U-blade

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

rip depth = 3'
cut spacing = 8.5' per pass
cut length = 300'

Volume = 3' deep x 20' wide x 13,200' long
= 29,400 cy

Productivity Calculations:

Cycle time = (300) ft / 88 fpm) + 0.25 = 3.66 min/pass
(cut length; speed; turn time)

Passes/hour = 50 min/hr / 3.66 min/pass = 13.7 passes/hr
(work hour factor; cycle time)

Volume cut per pass = (3 ft x 8.5 ft x 300 ft) / 27 ft^3/yd^3 = 283 bank yd^3/pass
(tool penetration; cut spacing; cut length)

Ripping Production = 283 bank yd^3/pass x 13.7 passes/hr = 3,877 bank yd^3/hr

Hours Required = (29,400 bank yd^3 / 3,877 bank yd^3/hr) x 1.143 = 9 hrs
(volume to be ripped; hourly production)

References: Cat Handbook Ed. 19
Drawing No. 89800

Mine Area J-19

Project Powerline-Ancillary Rds

Task Grading to Blend/Drain

WORKSHEET NO. P-4c

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE--GRADING

Earthmoving Activity: Grading the cut and fills to blend into the surrounding topography to drain, and burial of road surface material a minimum of three feet

Characterization of Dozer Used (type, size, etc.): D-10N, three-shank ripper, U-blade

Description of Dozer Use (push distance, % grade, blade effective length, operating speed, etc.):

20' wide x 13,200' long = 6.1 ac.

Productivity Calculations:

Operating Adjustment Factor = 0.75 (operator factor) x 0.8 (material factor) x 0.83 (work hour factor) x 1.0 (grade factor) x 2300/2900 (weight correction factor) x 1.0 (production method/blade factor) x 0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.36

Hourly Production = 2 (speed) mi/hr x 17 (eff. blade width) ft x 5280 ft/mi x 1 ac/43,560 ft² = 4 ac/hr

Net Hourly Production = 4 (hourly production factor) ac/hr x 0.36 (op. adj. factor) = 1.44 ac/hr

Hours Required = (6.1 ac. / 1.44 ac/hr) x 1.143 = 5 hrs

References: Cat Handbook Ed. 19
Drawing No. 89800
See AR-3

Mine Area All

Project Facilities-Ancillary Roads

Task Topsoil Spreading

WORKSHEET NO. P-4d

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul 1.25' of topsoil material to cover graded area

Characterization of Scraper Used (type, capacity, etc.): Cat 657 P-P

Description of Scraper Route (haul distance, % grade, etc.):

3,000' one way
Volume = 20' wide x 13,200' long x 1.25' deep = 12,300 cy

Cycle time = 1.0 (load time) min + _____ (loaded trip time) min + 1.0 (maneuver and spread time) min + _____ (return trip time) min = 4.23 min

Cycles/Hour = 50 min/hr (work hour factor) - _____ min/cycle = _____ cycles/hr

Hourly Production = _____ (adjusted load) yd^3 x _____ cycles/hr = _____ yd^3/hr

Hours Required = (12,300 (volume to be handled) yd^3 / 366.1 (net hourly production) yd^3/hr) x 1.143 = 39 hrs

Cat VEHSIM used for production estimate.

References: Cat VEHSIM
Drawing No. 89800

Summary

Direct Costs:

Activity	Hours	Cost/Hour	Total Direct Cost
D-10N Activity	26	$145.28	$ 3,800
657E P-P	39	$204.71	8,000
Structure Demolition and Disposal	—	—	16,200
Total Direct Cost:			$28,000
Total Indirect Cost: (11.4% - see Page 18, 10/01/94 Revision)			$ 3,200
		Total Reclamation Liability:	$31,200

ATTACHMENT 24-15

N-6/N-11 Powerline and N-11 Facilities Construction Area

Reclamation Liability

Revised 10/24/94

Introduction

The purpose of this reclamation liability estimate is to provide bonding cost calculations for approximately 0.5 miles of powerline to be constructed in 1994 to the N-11 truck dump/facilities site and an additional 20 acres for the N-11 facilities construction area.

Mine Area Kayenta

Project Facilities:N-6/N-11 Powerline

Task Remove Powerline

WORKSHEET NO. P-5

STRUCTURE DEMOLITION AND DISPOSAL COST SUMMARY

Listing of Powerlines to be Demolished:

Item	Length	Unit Cost Basis	Demolition Cost
1) Powerlines	0.5 miles	$4750/mi	$2,375
2) Revegetate Corridor	1.2 acres	$ 695/ac	834
3)			
4)			
5)			

Total Cost = $ 3,209

Assumptions: Assume Means crew R-6 removes 1 mile of powerline per day.

Powerline corridor is 20' wide x 2,500 feet = 1.2 ac.

TOTAL DEMOLITION AND DISPOSAL DIRECT COST = $ 3,300

References: Means Site Work 1993
Drawing No. 85210

Mine Area Kayenta

Project Facilities:N-11 Facilities

Task Topsoil Spreading

WORKSHEET NO. KM-13a

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul 1.25' of topsoil material to cover graded area (see Worksheet KM-12a)

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

3000' one way
Volume = 20 ac x 1.25' = 40,400 cy

Cycle time = 1.0 (load time) min + _____ (loaded trip time) min + 1.0 (maneuver and spread time) min + _____ (return trip time) min = 4.23 min

Cycles/Hour = 50 min/hr (work hour factor) - _____ min/cycle = _____ cycles/hr

Hourly Production = _____ (adjusted load) yd^3 x _____ cycles/hr = _____ yd^3/hr

Hours Required = (40,400 (volume to be handled) yd^3 / 366.1 (net hourly production) yd^3/hr) x 1.143 = 126 hrs

Cat VEHSIM used for production estimate.

References: Cat VEHSIM

Mine Area Kayenta

Project Facilities:N-11 Facilities

Task Grading to Blend/Drain

WORKSHEET NO. KM-12a

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE--GRADING

Earthmoving Activity: Grading the cut and fills to blend into the surrounding topography to drain additional area for powerline construction and construction activities

Characterization of Dozer Used (type, size, etc.): D-10N, three-shank ripper, U-blade

Description of Dozer Use (push distance, % grade, blade effective length, operating speed, etc.):

109 - 89 = 20 acres

Productivity Calculations:

Operating Adjustment Factor = 0.75 (operator factor) x 0.8 (material factor) x 0.83 (work hour factor) x 1.0 (grade factor) x 2300/2900 (weight correction factor) x 1.0 (production method/blade factor) x

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.36

Hourly Production = 2 (speed) mi/hr x 17 (eff. blade width) ft x 5280 ft/mi x 1 ac/43,560 ft^2 = 4 ac/hr

Net Hourly Production = 4 (hourly production factor) ac/hr x 0.36 (op. adj. factor) = 1.44 ac/hr

Hours Required = (20 ac. / 1.44 ac/hr) x 1.143 = 16 hrs

References: Cat Handbook Ed. 19

Mine Area Kayenta

Project Facilities:N-11 Facilities

Task Revegetation

WORKSHEET NO. KM-14a

REVEGETATION COSTS

Name and Description of Area to be Revegetated: N-11 Facilities (see Worksheet KM-12a)

Description of Revegetation Activities: Seed areas that have been covered with suitable material

Reseeding:

20 acres x ($ 40.00 per acre + $ 630.00 per acre) = $ 13,400

(# of acres to be reseeded) ($/acre for seedbed preparation) ($/acre for seeding, fertilizing, mulching, and fencing) (costs for reseeding)

Planting Trees and Shrubs: 1)

20 acres x $ 25.00 per acre = $ 500

(# of acres for planting) ($/acre for planting trees and shrubs) (costs for planting)

Other Revegetation Activity for this Area (e.g., Soil Sampling):

(Describe and provide cost estimate with documentation; use additional sheets if necessary.)

Total Cost = $ 13,900 + 20% failure

TOTAL REVEGETATION COST FOR THIS AREA = $ 16,700

References: PCC Actual Costs

Summary

Direct Costs:

Activity	Hours	Cost/Hour	Total Direct Cost
Powerline Removal	—	—	$ 3,300
D-10N Activity	16	$145.28	2,400
657E P-P Activity	126	204.71	25,800
Revegetation	—	—	16,700
Total Direct Cost:			$48,200

Total Indirect Cost: (11.4% - see Page 18, 10/01/94 Revision) = $ 5,500

Total Reclamation Liability = $53,700

ATTACHMENT 24-16

J-19 Mine Area Bond Adjustment

Revised 11/16/94

J-19 Mine Area
Bond Adjustment

Reason for Adjustment: The 03/08/90 bond estimate only assumed 509 acres of the J-19 mine area was disturbed in the "worst case" year; whereas, the revised mine plan with the addition of the new box cut area has 1385 acres disturbed. This requires a revised bond calculation. In the revised J-19 bond calculation, the "worst case" scenario was assumed for the J-19 mine area including the following:

1. 16,700 feet of box cut spoil plus 4 spoil ridge of backfilling and grading is required.

2. Total overburden, interburden, and coal removal depth at the highwall is assumed to be 125 feet.

3. Reclamation of ten ramps which connect with previously permitted and bonded the primary road system.

4. Reclamation of all J-19 topsoil stockpiles sites.

5. All other support facilities, powerlines, exterior roads outside the J-19 mine area, and support equipment are included in the previously approved bond calculations.

6. There is no pre-1994 revegetation maintenance cost required for J-19, everything is included in Category I.

J-19 Mine Area

Cost Summary

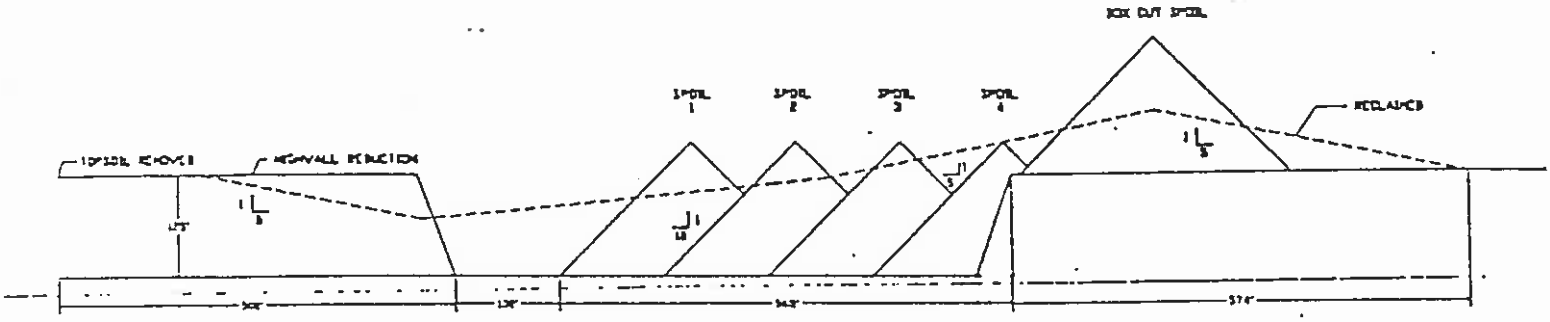
DIRECT COSTS		
Pit Area:		
Highwall Reduction (Blasting)	=	$ 567,100
Doze Highwall Material	=	1,830,700
Doze Adjacent Two Spoils	=	972,500
Grade Back Two Spoils & Box Cut Spoil	=	2,080,800
Misc. Grading	=	391,900
Ramp Grading	=	710,700
Surface Stabilization	=	131,500
Topsoil Replacement	=	3,053,200
Revegetation - Pit Area	=	1,155,100
Revegetation - Topsoil Stockpiles	=	164,300
Total Direct Cost:		$11,057,800
INDIRECT COSTS		
Mobilization and Demobilization (1% of Direct Costs)	=	$ 110,600
Contingencies (2% of Direct Costs)	=	221,200
Engineering Redesign Fee (2.5% of Direct Costs)	=	276,400
Contractor Profit and Overhead (3.7% of Direct Costs)	=	409,100
Reclamation Management Fee (2.5% of Direct Costs)	=	243,300
TOTAL INDIRECT COSTS	=	$ 1,260,600
TOTAL J-19 RECLAMATION LIABILITY	=	$12,318,400

Revised 11/16/94

Mine Area: J-19
Project Open Pit Backfilling
Task Open Pit Backfilling

WORKSHEET NO. J-19-1

EARTHWORK QUANTITY WORKSHEET



Highwall Reduction

Area = 7,643 sq. ft. (digitized area)
Pit Length = 16,700 ft.
Volume = 4,727,300 cu. yd. (for drilling and shooting)
Volume (including 25% swell) = 5,909,200 cu. yd. (for dozing)

Spoil to Open Pit

Spoil 1, 2 = 6,249 sq. ft. x 16,700 ft. = 3,865,100 cu. yd.

Spoil Grading

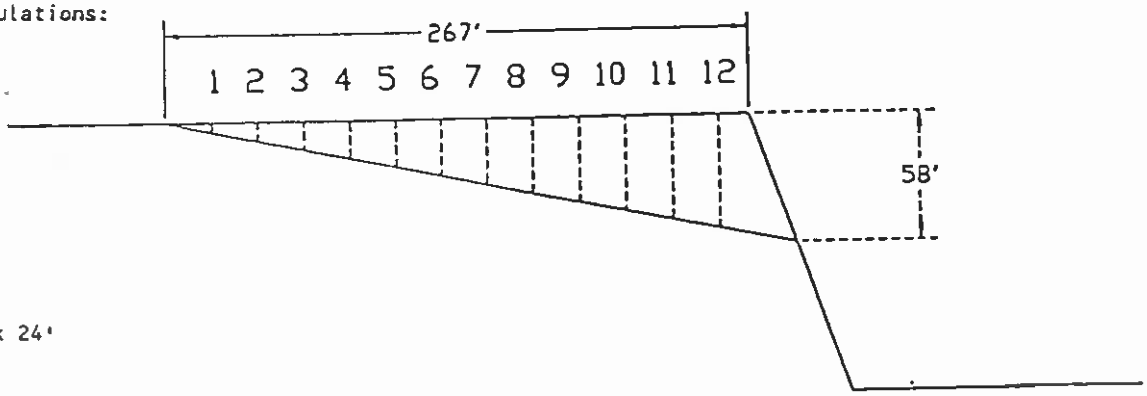
Spoil 3, 4 and Box Cut Spoil = 11,143 sq. ft. x 16,700 ft. =
6,892,200 cu. yd.

Mine Area J-19
Project Highwall Reduction
Task Drill & Shoot Highwall

WORKSHEET NO. J-19-2

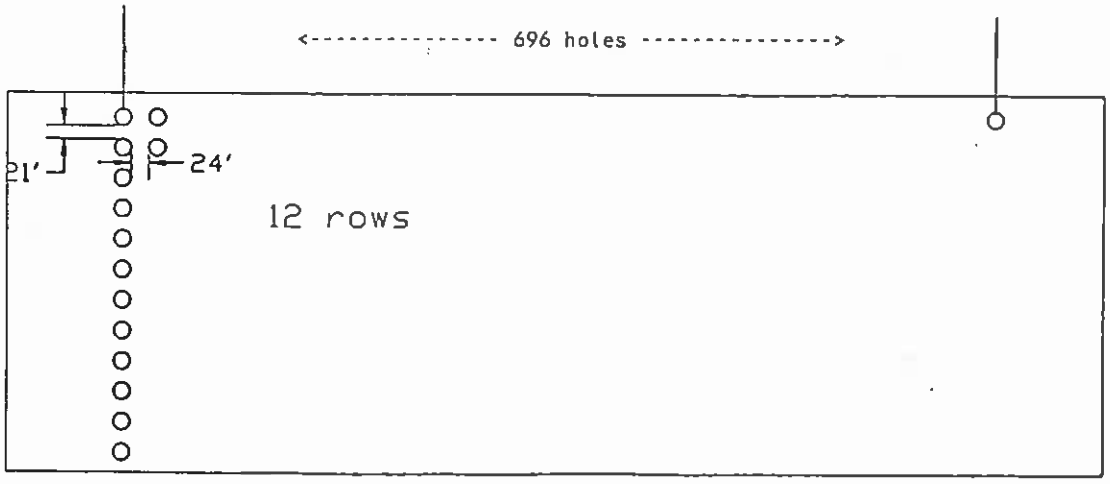
OTHER RECLAMATION ACTIVITY COSTS

Cost Estimate Calculations:



Drill Pattern 21' x 24'

Drill Hole	1	2	3	4	5	6	7	8	9	10	11	12	Total
Dist. to Hiwall Face (ft)	252	231	210	189	168	147	126	105	84	63	42	21	
Drill Hole Depth (ft)	2.9	7.1	11.3	15.5	19.7	23.9	28.1	32.3	36.5	40.7	44.9	49.1	312.0
Explosives in Column (lbs)	24.4	59.6	94.9	130.2	165.5	200.8	236.0	271.3	306.6	341.9	377.2	412.4	2620.8



Mine Area J-19
Project Highwall Reduction
Task Drill & Shoot Highwall

WORKSHEET NO. J-19-3

OTHER RECLAMATION ACTIVITY COSTS

Descriptions of Reclamation Activity: Blasting to reduce highwall

Assumptions:			Sources:
Powder Factor	=	0.45 lb/yd	BM/KM Costs for 1988
Hole Diameter	=	9-7/8 inches	Furnished by applicant
Drill	=	Ingersoll Rand DM 50	Cost Reference Guide
Drilling Rate	=	1.6 ft/min.	BM/KM Rate for 1988
Bit Life	=	8000 ft.	Furnished by applicant
Bit Cost	=	$1200/bit	Furnished by applicant
Explosives	=	$0.10/lb.	BM/KM Costs for 1988
Drill Cost	=	$115.31/hr.	Cost Reference Guide
Blaster rate	=	$16.47 + 3.48/hr.	Bacon Davis
Driller rate	=	$16.47 + 3.48/hr.	Bacon Davis

References: Dataquest, Cost Reference Guide for Construction Equipment, 1994
U.S. Department of Labor, Davis-Bacon Wage Rates

Mine Area J-19
Project Highwall Reduction
Task Drill & Shoot Highwall

WORKSHEET NO. J-19-4

OTHER RECLAMATION ACTIVITY COSTS

Total No. Holes = $\frac{16,700'}{24'}$ = 696 Holes x 12 Rows = 8,352 Holes

Total Feet of Drilling Required	Total Amount of Explosives
312 ft/12 holes x 8352 = 217,150 ft.	2620.8 lbs/12 holes x 8352 = 1,824,080 lbs.

Avg. Drilling Rate = 1.6 ft/min.

Time = $\frac{217,150 \text{ ft.}}{1.6 \text{ ft/min} \times 60 \text{ min/hr}}$ = 2,262 hrs.

Cost Estimate Calculations:

	Drill Cost	Driller Cost	Blaster Cost
Drilling =	(2,262 hrx115.31/hr) +	(2,262 hrx$19.95/hr) +	(2,262x$19.95/hr)

Cost = $351,100

28.0 bits @ $1200/bit = $33,600

Explosives: $0.10/lb. x 1,824,080 lb. = $182,408

TOTAL = $567,100

Mine Area J-19
Project Backfill Pit
Task Doze Highwall Material

WORKSHEET NO. J-19-5

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: Doze blasted highwall reduction material into pit.

Characterization of Dozer Used (type, size, etc.): D-10N, three-shank ripper, U-blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

180' Push

Productivity Calculations:

Operating Adjustment Factor = 0.75 (operator factor) x 0.8 (material factor) x 0.83 (work hour factor) x 1.4 (grade factor) x 0.82 (weight correction factor) x 1.0 (production method/blade factor) x

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.51

Net Hourly Production = 1,050 (normal hourly production) yd^3/hr x 0.51 (operating adjustment factor) = 536 yd^3/hr

Hours Required = (5,909,200 (volume to be moved) yd^3 / 536 (net hourly production) yd^3/hr) x 1.143 = 12,601 hrs

References: Cat Handbook, Ed. 19
See Table 24-2-3

Mine Area J-19

Project Backfill Pit

Task Doze Adjacent 2 Spoils

WORKSHEET NO. J-19-6

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: Push 2 Adjacent Spoils into Open Pit.

Characterization of Dozer Used (type, size, etc.): D-10N, three-shank ripper, U-Blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

200' Push

Productivity Calculations:

Operating Adjustment Factor = 0.75 (operator factor) x 1.2 (material factor) x 0.83 (work hour factor) x 1.2 (grade factor) x 0.82 (weight correction factor) x 1.0 (production method/blade factor) x

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.66

Net Hourly Production = 1,000 (normal hourly production) yd^3/hr x 0.66 (operating adjustment factor) = 660 yd^3/hr

Hours Required = (3,865,100 (volume to be moved) yd^3 / 660 (net hourly production) yd^3/hr) x 1.143 = 6,694 hrs.

References: Cat Handbook, Ed. 19
See Table 24-2-3

Mine Area J-19
Project Spoil Grading
Task Grade 2 Spoils & Box Cut Spoil

WORKSHEET NO. J-19-7

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: Grade the Back 2 Spoil Ridges and Box Cut Spoil (First 2 Spoils go into Pit)

Characterization of Dozer Used (type, size, etc.): D-10N, 3-shank ripper, U-blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

200' Push

Productivity Calculations:

Operating Adjustment Factor = 0.75 (operator factor) x 1.2 (material factor) x 0.83 (work hour factor) x 1.0 (grade factor) x 0.82 (weight correction factor) x 1.0 (production method/blade factor) x

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.55

Net Hourly Production = 1,000 (normal hourly production) yd^3/hr x 0.55 (operating adjustment factor) = 550 yd^3/hr

Hours Required = (6,892,200 (volume to be moved) yd^3 / 550 (net hourly production) yd^3/hr) x 1.143 = 14,323 hrs.

References: Cat Handbook, Ed. 19
See Table 24-2-3

Mine Area J-19

Project RAMP GRADING

Task Grade All Ramps

WORKSHEET NO. J-19-8

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: Ramp Grading

Characterization of Dozer Used (type, size, etc.): D-10N, three-shank ripper, U-Blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

Productivity Calculations:

Operating Adjustment Factor = 0.75 (operator factor) x 1.2 (material factor) x 0.83 (work hour factor) x 1.0 (grade factor) x 0.82 (weight correction factor) x 1.0 (production method/blade factor) x

0.9 (visibility) x 1.0 (elevation) x 1.0 (direct drive transmission) = 0.55

Net Hourly Production = 1,000 (normal hourly production) yd^3/hr x 0.55 (operating adjustment factor) = 550 yd^3/hr

Hours Required = (2,354,000 (volume to be moved) yd^3 / 550 (net hourly production) yd^3/hr) x 1.143 = 4,892 hrs.

References: Cat Handbook, Ed. 19
See Table 24-2-4

Mine Area J-19
Project Grading
Task Miscellaneous Grading

WORKSHEET NO. J-19-9

OTHER RECLAMATION ACTIVITY COSTS

Descriptions of Reclamation Activity:

Miscellaneous grading in and around the pit area, especially at either end of the pit that is not accounted for in the normal spoil pile grading.

Assumptions:

Assume that the grading required is a mixture of rough grading and final grading. Estimate one shift per acre.

Cost Estimate Calculations: 295 ac. x 8 hrs. x $145.28 x 1.143 =

TOTAL = $391,900

References: Peabody Experience
Table 24-2-5

Mine Area J-19
Project Unsuitable Spoil
Task Haul 2.75 Feet of Suitable Material to Cover Unsuitable Material

WORKSHEET NO. J-19-10

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul suitable plant growth material to graded spoil areas

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

See VEHSIM tables.

Cycle time = 1.0 (load time) min + 0.56 (loaded trip time) min + 1.0 (maneuver and spread time) min + 0.46 (return trip time) min = 3.02 min

Cycles/Hour = 50 min/hr (work hour factor) - _____ min/cycle = _____ cycles/hr

Hourly Production = _____ (adjusted load) yd^3 x _____ cycles/hr = _____ yd^3/hr

Hours Required =(2,613,200 (volume to be handled) yd^3 / 615.3 (net hourly production) yd^3/hr) x 1.143 = 4,854 hrs.

References: Cat VEHSIM
See Attachment 24-5 and Table 24-2-7

Mine Area J-19

Project Topsoil Replacement

Task 1.25 Feet of Topsoil on Disturbed Area

WORKSHEET NO. J-19-11

PRODUCTIVITY FOR SCRAPER USE

Earthmoving Activity: Haul topsoil from stockpiles to regraded spoil

Characterization of Scraper Used (type, capacity, etc.): Cat 657E P-P

Description of Scraper Route (haul distance, % grade, etc.):

See VEHSIM tables.

Cycle time = 1.0 min (load time) + 2.43 min (loaded trip time) + 1.0 min (maneuver and spread time) + 1.38 min (return trip time) = 5.81 min

Cycles/Hour = 50 min/hr (work hour factor) - _____ min/cycle = _____ cycles/hr

Hourly Production = _____ yd^3 (adjusted load) x _____ cycles/hr = _____ yd^3/hr

Hours Required =(2,793,100 yd^3 (volume to be handled) / 317.3 yd^3/hr (net hourly production)) x 1.143 = 10,061 hrs.

References: Cat VEHSIM
See Attachment 24-5 and Table 24-2-7

Mine Area J-19
Project Revegetation
Task Revegetate Dist. Area

WORKSHEET NO. J-19-12

REVEGETATION COSTS

Name and Description of Area to be Revegetated:

J-19 Mining area and ramps/roads beyond 4 spoil distance

Description of Revegetation Activities:

Revegetation of "worst case" disturbance area. Assume 20% failure rate.

Reseeding:

1385 acres x ($ 40.00 per acre + $ 630.00 per acre) = $927,950

(# of acres to be reseeded) ($/acre for seedbed preparation) ($/acre for seeding, fertilizing, mulching, and fencing) (costs for reseeding)

Planting Trees and Shrubs: [1)]

1385 acres x $ 25 per acre = $ 34,625

(# of acres for planting) ($/acre for planting trees and shrubs) (costs for planting)

Other Revegetation Activity for this Area (e.g., Soil Sampling):

(Describe and provide cost estimate with documentation; use additional sheets if necessary.)

Total Cost =$962,575 + 20% failure

TOTAL REVEGETATION COST FOR THIS AREA = $1,155,090

References: Peabody Actual Costs
Granite Seed Co.
Table 24-2-7 (Dist. Area)

Mine Area J-19
Project Reveg.-Topsoil Stockpiles
Task Revegetation

WORKSHEET NO. J-19-13

REVEGETATION COSTS

Name and Description of Area to be Revegetated:

J-19 Topsoil Stockpiles Area

Description of Revegetation Activities:

Area = 121 ac.

Reseeding:

121	acres x ($	40.00	per acre + $	630.00	per acre) = $	81,070
(# of acres to be reseeded)		($/acre for seedbed preparation)		($/acre for seeding, fertilizing, and mulching)		(costs for reseeding)

Planting Trees and Shrubs:

121	acres x $	25	per acre = $	3,025
(# of acres for planting)		($/acre for planting trees and shrubs)		(costs for planting)

Other Revegetation Activity for this Area (e.g., Soil Sampling):

(Describe and provide cost estimate with documentation; use additional sheets if necessary.)

Total Cost = $84,095 + 20% failure

Total Revegetation Cost for This Area = $100,900

References: PCC Actual Costs
Granite Seed Co

Mine Area J-19
Project Reveg.-Topsoil Stockpiles

Task Revegetation

WORKSHEET NO. J-19-13a

REVEGETATION COSTS

Name and Description of Area to be Revegetated:

J-19 Topsoil Stockpiles Area

Description of Revegetation Activities:

Additional Area = 76 ac.

Reseeding:

76 acres x ($ 40.00 per acre + $ 630.00 per acre) = $ 50,920

(# of acres to be reseeded) ($/acre for seedbed preparation) ($/acre for seeding, fertilizing, and mulching) (costs for reseeding)

Planting Trees and Shrubs:

76 acres x $ 25 per acre = $ 1,900

(# of acres for planting) ($/acre for planting trees and shrubs) (costs for planting)

Other Revegetation Activity for this Area (e.g., Soil Sampling):

(Describe and provide cost estimate with documentation; use additional sheets if necessary.)

Total Cost = $52,820 + 20% failure

Total Revegetation Cost for This Area = $63,400

References: PCC Actual Costs
Granite Seed Co

BLACK MESA AND [illegible]AYENTA COMPLEX BOND ESTIMATE

J-19 Direct [illegible]st Summary

	A	B	C	D	E	F	G	H	I	J	K	L	M
2		AREA	PROJECT	TASK	EQUIPMNT	EQUIPHRS	LABORCST	EQUIPCST	CUYDS	WRKSHEET	HRLYCOST	TOTALCST	COSTCY
3	356	J19	BACKFILL PIT	DOZE HIGHWALL MATRL	D10N	12,601	$20.85	$124.43	5,909,200	J-19-5	$145.28	$1,830,673.28	$0.310
4	357	J19	BACKFILL PIT	DOZE ADJ 2 SPOILS	D10N	8,694	$20.85	$124.43	3,865,100	J-19-6	$145.28	$972,504.32	$0.252
5	360	J19	GRADING	MISC GRADING	D10N	---	---	$391,900.00	---	J-19-9	---	$391,900.00	---
6	355	J19	HIGHWALL REDUC	DRILL & SHOOT HWALL	MISC	---	---	$567,100.00	4,727,300	J-19-4	---	$567,100.00	$0.120
7	359	J19	RAMP GRADING	GRADE ALL RAMPS	D10N	4,892	$20.85	$124.43	2,354,000	J-19-8	$145.28	$710,709.76	$0.302
8	367	J19	REVEG TSPILE	REVEGETATION	MISC	---	---	$100,900.00	---	J-19-13	---	$100,900.00	---
9	368	J19	REVEG TSPILE	REVEGETATION	MISC	---	---	$63,400.00	---	J-19-13a	---	$63,400.00	---
10	366	J19	REVEGETATION	REVEGETATION	MISC	---	---	$1,155,090.00	---	J-19-12	---	$1,155,090.00	---
11	358	J19	SPOIL GRADING	GRADE 2 SPOILS & B.CUT	D10N	14,323	$20.85	$124.43	6,892,200	J-19-7	$145.28	$2,080,845.44	$0.302
12	307	J19	SURFACE STABLE	GRADE TERRACES	D10N	183	$20.85	$124.43	---	TER-1	$145.28	$26,586.24	---
13	308	J19	SURFACE STABLE	GRADE TERRACES	14G	146	$20.85	$40.63	---	TER-1	$61.48	$8,976.08	---
14	370	J19	SURFACE STABLE	HAUL RIPRAP	769C	623	$20.85	$62.87	35,000	J-19-14	$83.72	$52,157.56	$1.490
15	318	J19	SURFACE STABLE	SPREAD RIPRAP	988B	250	$20.85	$74.69	---	RIP-1	$95.54	$23,885.00	---
16	371	J19	SURFACE STABLE	LOAD RIPRAP	988B	208	$20.85	$74.69	35,000	J-19-14	$95.54	$19,872.32	$0.568
17	363	J19	T.S. REPLACMNT	TOPSOIL SPREADING	657E	10,061	$20.85	$183.86	2,793,100	J-19-11	$204.71	$2,059,587.31	$0.737
18	362	J19	UNSUITABLE HW	COVER HW WITH SOIL	657E	4,854	$20.85	$183.86	2,613,200	J-19-10	$204.71	$993,662.34	$0.380
19	TOTAL					54,835			29,224,100			$11,057,849.65	