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Mr. Vincent Beresford
Geologist
Bureau of Land Management
Uncompahgre Field Office
2465 S. Townsend Ave
Montrose, CO 81401

Project: USPR001303
March 14, 2023

Subject Response to request for further information regarding the Sunrise Minerals Notice of Intent to Conduct Prospecting Operations for the REX Project in Montrose County, Colorado BLM Case File Number COC080843 and NOI # P-2022-019

Dear Mr. Beresford,

On behalf of Sunrise Minerals Inc. (Sunrise), SRK Consulting (U.S.), Inc. (SRK) submits this response to the request for further information by the U.S. Department of the Interior Bureau of Land Management Uncompahgre Field office (BLM) received via email January 5, 2023, regarding the *Notice of Intent to Conduct Prospecting Operations* (Notice) for the REX Project located in Montrose County Colorado. This response and the attachments will be provided to the Colorado Division of Reclamation, Mining and Safety (DRMS).

Comment 1: A reclamation cost estimate is required in order for your Notices to be considered complete (43 CFR §3809.301(b)(4). Please provide this estimate in accordance with the requirements at 43 CFR §3809.552.

Response: A reclamation cost estimate has been calculated using the Nevada Standardized Reclamation Cost Estimator (SRCE) 1.4.1 build 17b. The SRCE is an estimation tool for the calculation of bond amounts required to reclaim land that is no longer used for exploration, mining, or processing ore. Cost inputs for the SRCE model are provided from the Nevada Division of Environmental Protection (NDEP) annual Cost Data File updated annually by the BLM and the NDEP. Labor costs are based on Nevada Davis Bacon wage rates, and equipment and supply costs are based on regional rates. The Nevada Davis Bacon wage rates are slightly higher than the Davis Bacon Wage rates for Montrose County Colorado, which should make the estimate more conservative. The SRCE costs are predicated on the reclamation being completed by a third party under agency direction. The cost data information is included on pages 13-56 of the cost estimate.

The reclamation cost for the REX project is estimated as $19,462 which includes direct costs (drill hole abandonment, exploration road and pad reclamation, etc.) and indirect costs for insurance (1.5% of labor costs), contractor profit (10%), contract administration (10%) and government indirect costs (21% of contract administration). These costs are described at the bottom of page 4 on the *Cost Summary* worksheet. Costs for mobilization/demobilization of equipment and for the removal of sediment control measures (straw wattles, culvert, liner, etc.) was also included and can be found on the *Cost Summary* worksheet (page 3) Section A and Section D of the cost estimate.

Comment 2: A detailed project schedule is required to determine reclamation timing, cost and whether the activity will cause unnecessary or undue degradation. Please note that a Notice can only be accepted for work to be done in a 2-year period. Therefore, the proposed activity schedule should not exceed 2 years. If for some reason the work is not accomplished within 2 years, the Notice may be extended at its expiration date. If you want to conduct additional exploration based on your initial test results, you can request the Notice be modified under 43 CFR §3809.330 to account for additional activity.

Response: Drilling is anticipated to begin in May 2023 and completed by May 2025. Drilling success will determine the reclamation schedule, but disturbances will be reclaimed at the earliest opportunity. Earthwork and revegetation activities are limited by the time of year during which such activities can be effectively implemented. Site conditions and/or yearly climatic variations may require that this schedule be modified to achieve revegetation success. Reclamation activities will be coordinated with the BLM, as necessary. Monitoring of revegetation success will be conducted annually for a minimum of three years, or until revegetation standards have been met.

A link for digital copies of the cost estimate will be provided via email.

Please feel free to contact me at (775) 777-0106 or by email at canderson@srk.com with any question, concerns, or if you need further information.

Regards,
SRK Consulting (U.S.), Inc.

Cari L Anderson

Cari Anderson, E.I.
Principal Consultant

Cc: Colorado DRMS w/ attachment, Lucas West
Colorado DRMS digital, Dustin Czapla

Attachments:

Attachment 1 REX NOI Reclamation Cost Estimate

Attachment 1 REX NOI Reclamation Cost Estimate

Enter Data Below in Green and Blue Spaces

STANDARDIZED RECLAMATION COST ESTIMATOR

Version 1.4.1
Build 017b (Revised 16 May 2019)

Approved for use in Nevada, August 1, 2012

COST DATA FILE INFORMATION

File Name:	REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm
Cost Data File:	20220801_SRCE_Cost_Data_File_1_12_Std_2022.xlsm
Cost Data Date:	August 1, 2022
Cost Data Basis:	User Data — Data Cost Units: Imperial
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM

PROJECT INFORMATION

Property/Mine Name:	Sunrise Minerals, REX Property — Property Code:
Project Name:	REX Exploration Montrose County Colorado
Date of Submittal:	March 2023 — Average Altitude: 6000 ft.
Select One:	◉ Notice or Sm Exploration Plan ○ Lg Exploration Plan ○ Mine Operation
Select One:	○ Private Land ◉ Public or Public/Private
Cost Estimate Type:	Surety
Cost Basis Category:	N. Nevada Notice Level
Cost Basis Description:	**Notice Level Cost Basis for Churchill, Douglas, Elko, Esmeralda, Eureka, Humboldt, Lander, Lyon, Mineral, Pershing, Storey, Washoe, and White Pine Counties**

Name: REX Exploration Montrose County Colorado
Project Date: December 2022
REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm
Notice

Table of Contents

Description

Closure Cost Estimate
Cost Summary

Project Name: REX Exploration Montrose County Colorado
Project Date: December 2022
Model Version: Version 1.4.1
File Name: REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm

A. Earthwork/Recontouring	Labor [1]	Equipment [2]	Materials	Total
Exploration	$711	$520	$7	$1,238
Exploration Roads & Drill Pads	$1,136	$2,533	$0	$3,669
Roads	$0	$0	$0	$0
Well Abandonment	$0	$0	$0	$0
Pits	$0	$0	N/A	$0
Quarries & Borrow Areas	$0	$0	$0	$0
Underground Openings	$0	$0	$0	$0
Process Ponds	$0	$0	$0	$0
Heaps	$0	$0	$0	$0
Waste Rock Dumps	$0	$0	$0	$0
Landfills	$0	$0	$0	$0
Tailings	$0	$0	$0	$0
Foundation & Buildings Areas	$0	$0	$0	$0
Yards, Etc.	$0	$0	$0	$0
Drainage & Sediment Control	$0	$0	$0	$0
Generic Material Hauling	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other**				$0
Subtotal	**$1,847**	**$3,053**	**$7**	**$4,907**
Mob/Demob if included in Other User sheet	$0	$0	$0	$0
Mob/Demob **Estimated Mob/Demob Dozer, Backhoe**	$2,500	$2,500		$5,000
Subtotal "A"	**$4,347**	**$5,553**	**$7**	**$9,907**

B. Revegetation/Stabilization	Labor [1]	Equipment [2]	Materials	Total
Exploration	$0	$0	$0	$0
Exploration Roads & Drill Pads	$1,225	$700	$569	$2,494
Roads	$0	$0	$0	$0
Well Abandonment				N/A
Pits	$0	$0	$0	$0
Quarries & Borrow Areas	$0	$0	$0	$0
Underground Openings				N/A
Process Ponds	$0	$0	$0	$0
Heaps	$0	$0	$0	$0
Waste Rock Dumps	$0	$0	$0	$0
Landfills	$0	$0	$0	$0
Tailings	$0	$0	$0	$0
Foundation & Buildings Areas	$0	$0	$0	$0
Yards, Etc.	$0	$0	$0	$0
Drainage & Sediment Control	$0	$0	$0	$0
Generic Material Hauling	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other**				$0
Subtotal "B"	**$1,225**	**$700**	**$569**	**$2,494**

C. Detoxification/Water Treatment/Disposal of Wastes**	Labor [1]	Equipment [2]	Materials	Total
Process Ponds/Sludge				$0
Heaps				$0
Dumps (Waste & Landfill)				$0
Tailings				$0
Surplus Water Disposal				$0
Monitoring				$0
Miscellaneous				$0
Solid Waste - On Site	$0	$0	N/A	$0
Solid Waste - Off Site				$0
Hazardous Materials				$0
Hydrocarbon Contaminated Soils	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other**				$0
Subtotal "C"	**$0**	**$0**	**$0**	**$0**

D. Structure, Equipment and Facility Removal, and Misc.	Labor [1]	Equipment [2]	Materials	Total
Foundation & Buildings Areas	$0	$0	$0	$0
Other Demolition	$0	$0	$0	$0
Equipment Removal	$0	$0	$0	$0
Fence Removal	$0	$0		$0
Fence Installation	$0	$0	$0	$0
Culvert Removal	$305	$142	N/A	$447
Pipe Removal	$0	$0	N/A	$0
Powerline Removal	$0			$0
Transformer Removal	$0			$0
Rip-rap, rock lining, gabions	$0	$0	$0	$0
Other Misc. Costs	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other** **Removal of sediment control measures**	**$1,500**	**$1,500**		$3,000
Subtotal "D"	**$1,805**	**$1,642**	**$0**	**$3,447**

E. Monitoring	Labor [1]	Equipment [2]	Materials	Total
Reclamation Monitoring and Maintenance	$0	$0	$0	$0
Ground and Surface Water Monitoring	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Subtotal "E"	**$0**	**$0**	**$0**	**$0**

F. Construction Management & Support	Labor	Equipment [2]	Materials	Total
Construction Management	$0	$0	N/A	$0
Construction Support	$0	$0	$0	$0
Road Maintenance	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other**				$0
Subtotal "F"	**$0**	**$0**	**$0**	**$0**

Subtotal Operational & Maintenance Costs	Labor [1]	Equipment [2]	Materials [3]	Total
Subtotal A through F	**$7,377**	**$7,895**	**$576**	**$15,848**

** Other Operator supplied costs - additional documentation required.

Closure Cost Estimate
Cost Summary

Project Name: REX Exploration Montrose County Colorado
Project Date: December 2022
Model Version: Version 1.4.1
File Name: REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm

Indirect Costs				Include?	Total
1. Engineering, Design and Construction (ED&C) Plan (7)					N/A
2. Contingency (8)					N/A
3. Insurance (9)	$111				$111
4. Performance Bond (10)					N/A
5. Contractor Profit (11)					$1,585
6. Contract Administration (12)					$1,585
7. Government Indirect Cost (13)					$333
Subtotal Add-On Costs					**$3,614**
Total Indirect Costs as % of Direct Cost					23%
GRAND TOTAL					**$19,462**

Administrative Cost Rates (%)					
	Cost Ranges for Indirect Cost Percentages				
	<=	<=	<=	>	
1. Engineering, Design and Construction (ED&C) Plan (7)	$1,000,000	$25,000,000		$25,000,000	Small Plan
Variable Rate	8%	6%		4%	0%
	<=	<=	<=	>	
2. Contingency (8)	$500,000	$5,000,000	$50,000,000	$50,000,000	Small Plan
Variable Rate	10%	8%	6%	4%	0%
3. Insurance (9)	1.5%	of labor costs			
4. Bond (10)	3.0%	of the O&M costs if O&M costs are >$100,000			
5. Contractor Profit (11)	10%	of the O&M costs			
	<=	<=	<=	>	
6. Contract Administration (12)	$1,000,000	$25,000,000		$25,000,000	
Variable Rate	10%	8%		6%	
Government Indirect Cost (13)	21%	of contract administration			

RECLAMATION COST ESTIMATION SUMMARY SHEET FOOTNOTES

1. Federal construction contracts require Davis-Bacon wage rates for contracts over $2,000. Wage rate estimates may include base pay, payroll loading,
2. The reclamation cost estimate must include the estimated plugging cost of at least one drill hole for each active drill rig in the project area. Where the
3. Miscellaneous items should be itemized on accompanying worksheets.
4. Fluid management should be calculated only when mineral processing activities are involved. Fluid management represents the costs of maintaining proper
5. Handling of hazardous materials includes the cost of decontaminating, neutralizing, disposing, treating and/or isolating all hazardous materials used, produced,
6. Any mitigation measures required in the Plan of Operations must be included in the reclamation cost estimate. Mitigation may include measures to avoid,
7. Engineering, design and construction (ED&C) plans are often necessary to provide details on the reclamation needed to contract for the required work. To
8. A contingency cost is included in the reclamation cost estimation to cover unforeseen cost elements. Calculate the contingency cost as a percentage of the
9. Insurance premiums are calculated at 1.5% of the total labor costs. Enter the premium amount if liability insurance is not included in the itemized unit costs.
10. Federal construction contracts exceeding $100,000 require both a performance and a payment bond (Miller Act, 40 USC 270et seq.). Each bond premium is
11. For Federal construction contracts, use 10% of estimated O&M cost for the contractor's profit.
12. To estimate the contract administration cost, use 6 to 10% of the operational and maintenance (O&M) cost. Calculate the contract administration cost as a
13. Government indirect cost rate is 21% of the contract administration costs.

Closure Cost Estimate
Reclamation Quantities

Project Name: REX Exploration Montrose County Colorado- Notice or Exploration
Date of Submittal: December 2022
File Name: REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm
Model Version: Version 1.4.1
Data Cost File: 20220801_SRCE_Cost_Data_File_1_12_Std_2022.xlsm
Cost Data: User Data
Cost Data File: 20220801_SRCE_Cost_Data_File_1_12_Std_2022.xlsm
Cost Estimate Type: Surety Cost Basis: N. Nevada Notice Level

Reclamation Quantity Summary

	Description	Total Regrade or Haul Volume cy	Total Regrade or Haul Cost $	Total Cover Volume cy	Cover Placement Cost $	Total Growth Media Volume cy	Growth Media Placement Cost $	Total Surface Area acres	Total Scarify Cost $	Total Revetation Cost $	TOTALS $	Unit Costs: Regrade Unit Cost $/CY	Material Haul or Backfill Unit Cost $/CY	Cover Unit Cost $/CY	Growth Media Unit Cost $/CY	Scarify Unit Cost $/CY	Area Unit Cost $/acre
1	Waste Rock Dumps		$ -		$ -		$ -		$ -	$ -	$ -		N/A				
2	Tailings Impoundments		$ -		$ -		$ -		$ -	$ -	$ -		N/A				
3	Heap Leach Pads		$ -		$ -		$ -		$ -	$ -	$ -		N/A				
5	Open Pits		$ -							$ -	$ -		N/A				
4	Quarries & Borrow Pits		$ -		$ -		$ -		$ -	$ -	$ -		N/A				
6	Roads		$ -				$ -		$ -	$ -	$ -		N/A				
7	Landfills		$ -		$ -		$ -		$ -	$ -	$ -		N/A				
8	Buildings				$ -		$ -		$ -	$ -	$ -		N/A				
9	Yards		$ -		$ -		$ -		$ -	$ -	$ -		N/A				
10	Ponds		$ -				$ -			$ -	$ -	N/A					
11	Exploration Roads	522	$ 1,989				$ -	0.97	$ 1,680	$ 2,494	$ 6,163	$3.81	N/A			$1,731.96	$6,353.61
12	Exploration Trenches		$ -							$ -	$ -		N/A				
13	Diversion Ditches		$ -							$ -	$ -		N/A				
14	Sediment Ponds		$ -				$ -		$ -	$ -	$ -						
15	Generic Haulage/Backfill		$ -		$ -		$ -		$ -	$ -	$ -	N/A					
16	Adit/Decline Backfilling1		$ -								$ -	N/A					
17	Shaft Backfilling		$ -								$ -	N/A					
	TOTALS	522	$ 1,989	-	$ -	-	$ -	0.97	$ 1,680	$ 2,494	$ 6,163						
	Average Costs	per CY	$3.81	per CY		per CY		per acre	$1,731.96	$1.48	$6,354	per acre					

Closure Cost Estimate
Exploration

Project Name: REX Exploration Montrose County Colorado- Notice or Exploration
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Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: 20220801_SRCE_Cost_Data_File_1_12_Std_2022.xlsm
Cost Estimate Type: Surety Cost Basis: N. Nevada Notice Level

Exploration - Cost Summary

	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	$711	$520	$7	$1,238
Trench Backfilling Costs	$0	$0		$0
Subtotal Earthworks	**$711**	**$520**	**$7**	**$1,238**
Trench Revegetation Costs	$0	$0	$0	$0
TOTALS	**$711**	**$520**	**$7**	**$1,238**

Exploration Drillhole Abandonment - User Input

	Facility Description		Hole Plugging							
	Description (required)	ID Code	Hole Type (select)	Diameter in	Total Number of Holes	Max Holes Open at One Time	Casing to Remove ft	Average Depth of Hole [1] ft bgs	Depth to Water ft bgs	Hole Plug Method (select)
1	**Drill holes 7, 8, 11**		**Reverse Circ**	**6.0**	**3.0**	**1.0**	**400.0**	**400.0**	**400.0**	**Grout + Backfill**

Notes:
1. If core holes are pre-drilled, use length of hole below pre-drilled length
2. If Top Plug is selected, assumes maximum 1/2hr laborer time to place plug and backfill with cuttings/soil (including move-to/set up time).

Drill holes range from 90 to 400 feet deep with an average of 166 feet.

Exploration Trenches - User Input

	Facility Description		Trench Parameters					Backfill			Revegetation		
	Description (required)	ID Code	Trench Length ft	Trench Depth ft	Trench Bottom Width ft	Trench Sideslope Angle degrees	Additional Hrs for Walk-in [1] hr	Backfill Material (select)	Cut Material Type (select)	Backfilling Fleet (select)	Seed Mix (select)	Mulch (select)	Fertilizer (select)

Notes:
1. Include one-way hours necessary to walk equipment in from drop-off point to work area
2. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Exploration Drillhole Abandonment

	Description (required)	Vol/foot of depth ft3	Hole Plugging Material [1]	Total Grout Volume [2] cy	Total Cuttings Volume cy	Total Top Seal Volume [3,4] cy	Total Drillhole Abandon. Hours [6,7] hrs	Casing Removal Labor Cost [5] $	Casing Removal Equipment Cost $	Plugging Labor Cost $	Plugging Equipment Cost $	Plugging Material Cost $	Top Seal Material Cost [2,3] $	Total Cost [6,7] $
1	**Drill holes 7, 8, 11**	0.200	Cuttings	0.00	2.44	0.19	5	$344	$368	$367	$152	$0	$7	$1,238
					2.44	0.19	5	**$344**	**$368**	**$367**	**$152**	**$0**	**$7**	**$1,238**

Notes:

1. Assumes grout backfill from bottom of hole to 50' (15.24m) above static water level, up to 10' (3m) from top of hole
2. Assumes 25% loss to formation for grout backfill
3. If "Top Plug" hole plug method is used, assumes physical plug installed without backfill, grout or cement. Not available option for Nevada projects
4. Assumes top 20' (6 m) of hole is plugged with cement if "Grout Only", "Backfill + Grout", or "Cement Plug" hole plug method are chosen.
5. Assumes that a) casing is not cemented entire length, b) does not include temporary surface casing
6. Assumes minimum 1 hr per hole for abandonment (excluding move-to and casing removal)
7. Assumes fixed hours per hole for setup & tear-down and moving between holes (see Productivty Sheet) per drill hole (includes rig time if grouting required, labor crew only if cuttings backfill only)

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Exploration - Cost Summary

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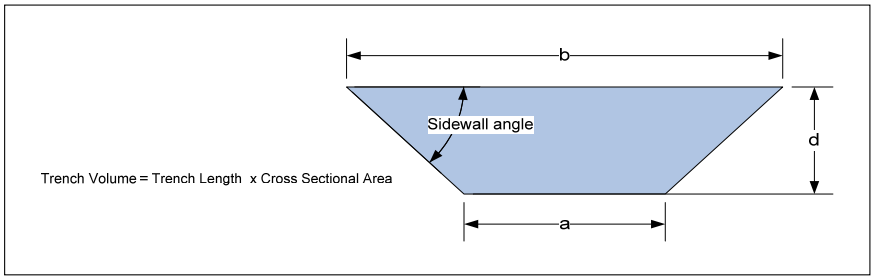
Subtotal Earthworks	**$711**	**$520**	**$7**	**$1,238**
Trench Revegetation Costs	$0	$0	$0	$0
TOTALS	**$711**	**$520**	**$7**	**$1,238**

Exploration Trenches - Calculations

Exploration Trench Volume Calculation



Dozing & Ripping/Scarifying Calculations

Dozing: Dozing distance = 1/2 trench length or 400 ft (max push) whichever is less
Assumes flat push (grade correction factor = 1)

Revegetation: 10 ft added to trench width to account for revegetation under spoil pile

Closure Cost Estimate
Exploration

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Trench Backfilling Costs	$0	$0		$0
Subtotal Earthworks	**$711**	**$520**	**$7**	**$1,238**
Trench Revegetation Costs	$0	$0	$0	$0
TOTALS	**$711**	**$520**	**$7**	**$1,238**

Exploration Trenches - Backfill/Regrading Costs

Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83)

Description (required)	Trench Backfill Volume LCY (BCY+30%)	Dozer Push Distance ft	Equipment Productivity yd3/hr	Dozing Material	Density Correction	Backfilling Fleet	Corrected Hourly Productivity yd3/hr	Total Dozer Hours hr	Trench Backfill Labor Cost $	Trench Backfill Equipment Cost $	Total Trench Backfill Cost $
									$0	**$0**	**$0**

Exploration Trenches - Revegetation Costs

Description (required)	Surface Area acres	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
		$0	**$0**	**$0**	**$0**

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Cost Estimate Type: Surety Cost Basis: N. Nevada Notice Level

Exploration Roads & Pads - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$639	$1,350	N/A	$1,989
Cover Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$497	$1,183	N/A	$1,680
Subtotal Earthworks	**$1,136**	**$2,533**		**$3,669**
Revegetation Cost	$1,225	$700	$569	$2,494
TOTALS	**$2,361**	**$3,233**	**$569**	**$6,163**

Exploration Roads & Pads - User Input

You must fill in ALL green cells and relevant blue cells in this section for each road

	Facility Description		Physical (1) - MANDATORY										User Overrides		Growth Media		
	Description (required)	ID Code	Underlying Ground Slope % grade	Ungraded Slope _H:1V	Cut Slope degrees	Road + Drill Pad Length ft	Road Width ft	Number of Drill Pads	Individual Sump Volume cy	Drill Pad Width ft	Drill Pad Length ft	Slope Replacement Percent %	Regrade Volume (if calculated elsewhere) cy	Disturbed Area (if calculated elsewhere) acres	Growth Media Thickness in	Distance to Growth Media Stockpile ft	Slope from Road to Stockpile % grade
1	Laydown Yard		5.0	1.3	60.0	100	12.0	1	0	75.0	100	100%					
2	Drill Pads		5.0	1.3	60.0	225	12.0	3	12	50.0	75	100%					
3	Overland Travel to Site #8		15.0	1.3	60.0	110	14.0	0	0	0.0	0	100%					
4	Proposed Roads to Site #11		15.0	1.3	60.0	50	14.0	0	0	0.0	0	100%					
5	Improved Road 15%		15.0	1.3	60.0	1,110	12.0	0	0	0.0	0	100%					
6	Improved Road 10%		10.0	1.3	60.0	110	12.0	0	0	0.0	0	100%					
7	Improved Road 5%		5.0	1.3	60.0	240	12.0	0	0	0.0	0	100%					

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. Slope replacement refers to the percentage of cut volumn replaced during regrading.
3. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)
4. Sump volume will be applied to all roads on slopes <20%. On slopes >20% pad width (i.e. cut volume) should be adequate to account for sump volume.

Exploration Roads & Pads - User Input (cont.)

You must fill in ALL green cells and relevant blue cells in this section for each road

		Grading				Growth Media				Revegetation				
	Description (required)	Regrade Material Condition (select)	Cut Material Type (select)	Recontouring Equipment Fleet (select)	Additional Hrs for Walk-in [1]	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Additional Hrs for Walk-in [1]	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarifying/ Ripping? (select)	Ripping Fleet (select)
1	Laydown Yard	1	Granite - broken	Small Dozer						User Mix 1	None	None	Yes	Small Dozer
2	Drill Pads	1	Granite - broken	Small Dozer						User Mix 1	None	None	Yes	Small Dozer
3	Overland Travel to Site #8	1	Granite - broken	Small Dozer						User Mix 1	None	None	Yes	Small Dozer
4	Proposed Roads to Site #11	1	Granite - broken	Small Dozer						User Mix 1	None	None	Yes	Small Dozer
5	Improved Road 15%	1	Granite - broken	Small Dozer						User Mix 1	None	None	Yes	Small Dozer
6	Improved Road 10%	1	Granite - broken	Small Dozer						User Mix 1	None	None	Yes	Small Dozer
7	Improved Road 5%	1	Granite - broken	Small Dozer						User Mix 1	None	None	Yes	Small Dozer

Notes:
1. Include one-way hours necessary to walk equipment in from drop-off point to work area
2. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Project Name: REX Exploration Montrose County Colorado- Notice or Exploration
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Cost Data: User Data
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Cost Estimate Type: Surety Cost Basis: N. Nevada Notice Level

Exploration Roads & Pads - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$639	$1,350	N/A	$1,989
Cover Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$497	$1,183	N/A	$1,680
Subtotal Earthworks	**$1,136**	**$2,533**		**$3,669**
Revegetation Cost	$1,225	$700	$569	$2,494
TOTALS	**$2,361**	**$3,233**	**$569**	**$6,163**

Exploration Roads & Pads - Calculations

Regrading Volume and Footprint Volume

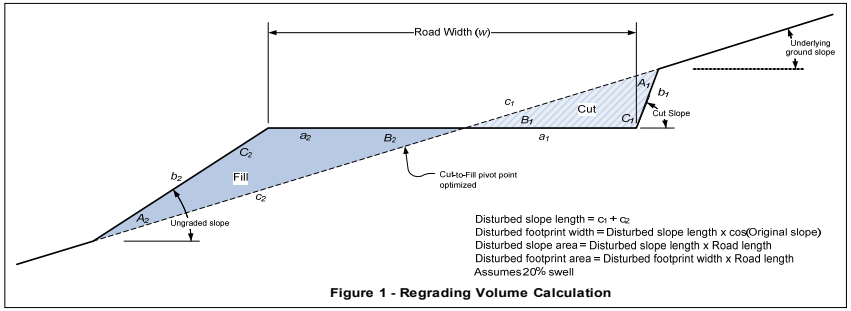

Figure 1 - Regrading Volume Calculation

Will not allow dozer for slopes greater than 30%
For dozer regrading push distance = road width
Assumes dozer push is uphill
Assumes minimum push distance of 100 ft

Swell Factor: 1.2

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per area
Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Road length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
For dozer regrading assumes push distance = 3 x road width

Revegetation Calculations

Minimum of 1 acre crew time per area

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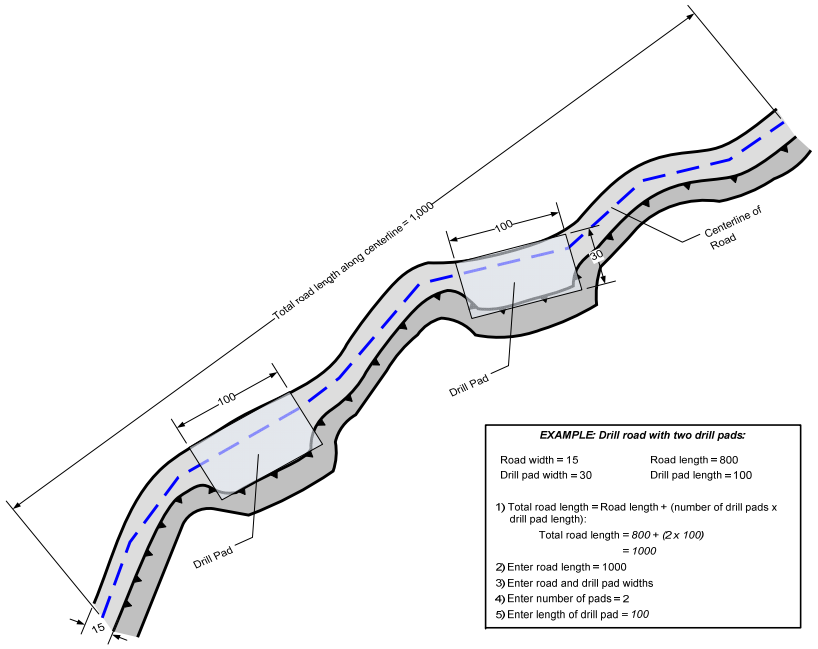
TOTALS	**$2,361**	**$3,233**	**$569**	**$6,163**

Inputting Exploration Roads and Drill Pads



EXAMPLE: Drill road with two drill pads:

Road width = 15 Road length = 800
Drill pad width = 30 Drill pad length = 100

1) Total road length = Road length + (number of drill pads x drill pad length):
Total road length = *800 + (2 x 100)*
= 1000
2) Enter road length = 1000
3) Enter road and drill pad widths
4) Enter number of pads = 2
5) Enter length of drill pad = *100*

Closure Cost Estimate
Expl. Roads & Pads

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Exploration Roads & Pads - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$639	$1,350	N/A	$1,989
Cover Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$497	$1,183	N/A	$1,680
Subtotal Earthworks	**$1,136**	**$2,533**		**$3,669**
Revegetation Cost	$1,225	$700	$569	$2,494
TOTALS	**$2,361**	**$3,233**	**$569**	**$6,163**

Exploration Roads & Pads - Regrading Costs

	Description (required)	Total Road Length ft	Total Drill Pad Length ft	Regrading Volume cy	Recontouring Fleet	Equipment Productivity cy/hr	Total Equipment Hours (1) hr	Total Labor Cost $	Total Equipment Cost $	Total Regrading Cost $
1	**Laydown Yard**	0	100	149	D6R	105	1	$71	$150	$221
2	**Drill Pads**	0	225	185	D6R	105	2	$142	$300	$442
3	**Overland Travel to Site #8**	110	0	19	D6R	59	1	$71	$150	$221
4	**Proposed Roads to Site #11**	50	0	9	D6R	59	1	$71	$150	$221
5	**Improved Road 15%**	1,110	0	142	D6R	59	2	$142	$300	$442
6	**Improved Road 10%**	110	0	9	D6R	81	1	$71	$150	$221
7	**Improved Road 5%**	240	0	9	D6R	105	1	$71	$150	$221
		1,620	325	522			9	**$639**	**$1,350**	**$1,989**

(1) Includes walk-in time based on distance and travel speed (see Productivity sheet for speeds)

Exploration Roads & Pads - Growth Media Costs

	Description (required)	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Growth Media Cost $
1	**Laydown Yard**						$0	$0	$0
2	**Drill Pads**						$0	$0	$0
3	**Overland Travel to Site #8**						$0	$0	$0
4	**Proposed Roads to Site #11**						$0	$0	$0
5	**Improved Road 15%**						$0	$0	$0
6	**Improved Road 10%**						$0	$0	$0
7	**Improved Road 5%**						$0	$0	$0
							$0	**$0**	**$0**

Exploration Roads & Pads - Scarifying/Revegetation Costs

	Description (required)	Surface Area acres	Ripping/ Scarifying Fleet	Ripping Hours hrs	Ripping Labor Costs $	Ripping Equipment Cost $	Total Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**Laydown Yard**	0.18	D7R	1	$71	$169	$240	$175	$100	$106	$381
2	**Drill Pads**	0.27	D7R	1	$71	$169	$240	$175	$100	$158	$433
3	**Overland Travel to Site #8**	0.04	D7R	1	$71	$169	$240	$175	$100	$23	$298
4	**Proposed Roads to Site #11**	0.02	D7R	1	$71	$169	$240	$175	$100	$12	$287
5	**Improved Road 15%**	0.36	D7R	1	$71	$169	$240	$175	$100	$211	$486
6	**Improved Road 10%**	0.03	D7R	1	$71	$169	$240	$175	$100	$18	$293
7	**Improved Road 5%**	0.07	D7R	1	$71	$169	$240	$175	$100	$41	$316
		0.97		7	**$497**	**$1,183**	**$1,680**	**$1,225**	**$700**	**$569**	**$2,494**

Closure Cost Estimate
Labor Rates

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ZONE ADJUSTMENTS

Cost Basis/Project Region	N. Nevada Notice Level	Notice Level Cost Basis for Churchill, Douglas, Elko, Esmeralda, Eureka, Humboldt, Lander, Lyon, Mineral, Pershing, Storey, Washoe, and White
Power Equipment Operators	>300 miles	$0.00
Truck Drivers	>300 miles	$0.00
Laborers	>300 miles	$0.00

INDIRECT COSTS

Unemployment (%)	3.00%
Retirement/SS/Medicare (%)	7.65%
Workman's Compensation (%)	13.10%
Other Indirects	
State Payroll Tax (13),(15),(17),(1	
Total Other Indirects	**0.00%**

HOURLY LABOR RATE TABLE

EQUIPMENT TYPE (1) OR JOB DESCRIPTION	Labor Group	Base Rate ($/hr)	Zone Adjustment ($/hr)	Hourly Wage ($/hr)	Fringe ($/hr)	Retirement/ Medicare ($/hr)	Unemployment Insurance ($/hr)	Workman's Compensation ($/hr)	Other Indirect Costs ($/hr)	Total ($/hr)
Equipment Operators ($/hr) (2)										
Bulldozers										
D6R		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
D6R w/ Winch					$24.80					
D7R		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
D8R		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
D9R		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
D10R		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
D11R		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
Wheeled Dozers										
824G					$24.80					
834G					$24.80					
844					$24.80					
854G					$24.80					
Motor Graders										
120H		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
14G/H		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
16G/H		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
24M					$24.80					
Track Excavators										
312C		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
320C		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
325C		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
330C		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
345B		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
365BL					$24.80					
385BL		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
Scrapers										
631G		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
637G		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
Wheeled Loaders										
924G		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
928G		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
950G		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
966G		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
972G		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
980G		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
988G		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
990					$24.80					
992G		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
994D					$24.80					
L2350					$24.80					
Shovels										
PC2000					$24.80					
PC3000					$24.80					
PC4000					$24.80					
PC5500					$24.80					
PC8000					$24.80					
Hydraulic Hammers										
H-120 (fits 325)										
H-160 (fits 345)										
H-180 (fits 365/385)										
Demolition Shears										
S340 (fits 322/325/330)										
S365 (fits 330/345)										
S390 (fits 365/385)										
Demolition Grapples										
G315 (fits 322/325)										
G320 (fits 325/330)										
G330 (fits 345/365)										

Closure Cost Estimate
Labor Rates

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Cost Basis/Project Region	N. Nevada Notice Level	Notice Level Cost Basis for Churchill, Douglas, Elko, Esmeralda, Eureka, Humboldt, Lander, Lyon, Mineral, Pershing, Storey, Washoe, and White
Power Equipment Operators	>300 miles	$0.00
Truck Drivers	>300 miles	$0.00
Laborers	>300 miles	$0.00

INDIRECT COSTS

Unemployment (%)	3.00%
Retirement/SS/Medicare (%)	7.65%
Workman's Compensation (%)	13.10%
Other Indirects	
State Payroll Tax (13),(15),(17),(1	
Total Other Indirects	**0.00%**

HOURLY LABOR RATE TABLE

Other Equipment

420D 4WD Backhoe		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
428D 4WD Backhoe		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
CS533E Vibratory Roller		$36.92	$0.00	$36.92	$24.80	$1.11	$2.82	$4.84	$0.00	$70.49
CS633E Vibratory Roller					$24.80					
CP533E Sheepsfoot Compactor					$24.80					
CP633E Sheepsfoot Compactor					$24.80					
Light Truck - 1.5 Ton					$24.80					
Supervisor's Truck					$24.80					
Flatbed Truck					$24.80					
Air Compressor + tools		$35.46	$0.00	$35.46	$24.80	$1.06	$2.71	$4.65	$0.00	$68.68
Welding Equipment		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
Heavy Duty Drill Rig		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
Pump (plugging) Drill Rig		$37.51	$0.00	$37.51	$24.80	$1.13	$2.87	$4.91	$0.00	$71.22
Concrete Pump					$24.80					
Gas Engine Vibrator		$36.92	$0.00	$36.92	$24.80	$1.11	$2.82	$4.84	$0.00	$70.49
Generator 5KW					$24.80					
HDEP Welder (pipe or liner)					$24.80					
5 Ton Crane		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
20 Ton Crane		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
50 Ton Crane		$38.37	$0.00	$38.37	$24.80	$1.15	$2.94	$5.03	$0.00	$72.28
120 Ton Crane					$24.80					

NOTES:

(1) Equipment Type:	Catepillar model or equivalent, LeTourneau
(2) Equipment Operator Source:	D-B NV20220002 3/11/2022
(3) Zone Basis:	From Washoe Co. Courthouse

Truck Drivers ($/hr) (4)

725	ruck Driver > 25 yds	$31.50	$0.00	$31.50	$4.16	$0.95	$2.41	$4.13	$0.00	$43.14
730	ruck Driver > 25 yds	$31.50	$0.00	$31.50	$4.16	$0.95	$2.41	$4.13	$0.00	$43.14
735	ruck Driver > 25 yds	$31.50	$0.00	$31.50	$4.16	$0.95	$2.41	$4.13	$0.00	$43.14
740	ruck Driver > 25 yds	$31.50	$0.00	$31.50	$4.16	$0.95	$2.41	$4.13	$0.00	$43.14
769D	ruck Driver > 25 yds	$31.50	$0.00	$31.50	$4.16	$0.95	$2.41	$4.13	$0.00	$43.14
773E					$4.16					
777D	ruck Driver > 60 yds	$31.50	$0.00	$31.50	$4.16	$0.95	$2.41	$4.13	$0.00	$43.14
785C					$4.16					
793C					$4.16					
797B					$4.16					
613E (5,000 gal) Water Wagon	ter Truck > 2,500 gall	$31.50	$0.00	$31.50	$4.16	$0.95	$2.41	$4.13	$0.00	$43.14
621E (8,000 gal) Water Wagon	ter Truck > 2,500 gall	$31.50	$0.00	$31.50	$4.16	$0.95	$2.41	$4.13	$0.00	$43.14
777D Water Truck					$4.16					
785C Water Truck					$4.16					
Dump Truck (10-12 yd3)	Truck Driver > 8 yds <	$31.50	$0.00	$31.50	$4.16	$0.95	$2.41	$4.13	$0.00	$43.14

NOTES:

(4) Truck Driver Source:	D-B SUNV2017-001 10/1/2018
(5) Zone Basis:	From Washoe Co. Courthouse

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Labor Rates

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Power Equipment Operators	>300 miles	$0.00
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Laborers	>300 miles	$0.00

INDIRECT COSTS

Unemployment (%)	3.00%
Retirement/SS/Medicare (%)	7.65%
Workman's Compensation (%)	13.10%
Other Indirects	
State Payroll Tax (13),(15),(17),(1	
Total Other Indirects	**0.00%**

HOURLY LABOR RATE TABLE

Laborers ($/hr) (6,7)

General Laborer	Group 1	$28.55	$0.00	$28.55	$14.77	$0.86	$2.18	$3.74	$0.00	$50.10
Skilled Laborer	Group 4	$29.05	$0.00	$29.05	$14.77	$0.87	$2.22	$3.81	$0.00	$50.72
Driller's Helper	Group 3	$28.80	$0.00	$28.80	$14.77	$0.86	$2.20	$3.77	$0.00	$50.41
Rodmen (reinforcing concrete)	Group 1	$28.55	$0.00	$28.55	$14.77	$0.86	$2.18	$3.74	$0.00	$50.10
Cement finisher	Group 3	$28.80	$0.00	$28.80	$14.77	$0.86	$2.20	$3.77	$0.00	$50.41
Carpenter		$33.63	$0.00	$33.63	$18.33	$1.01	$2.57	$4.41	$0.00	$59.95

NOTES:

(6) Laborer Source:	D-B LABO0169-034 10/1/2021
(7) Carpenter Source:	D-B CARP0971-013 7/1/2021
(8) Zone Basis:	From Washoe Co. Courthouse

Project Management and Technical Labor ($/hr) (9)

Project Manager		$68.63		$68.63	$14.77	$2.06	$5.25	$8.99	$0.00	$99.69
Foreman		$63.56		$63.56	$14.77	$1.91	$4.86	$8.33	$0.00	$93.43
Field Geologist/Engineer		$113.13		$113.13	$14.77	$3.39	$8.65	$14.82	$0.00	$154.77
Field Tech/Sampler		$76.77		$76.77	$14.77	$2.30	$5.87	$10.06	$0.00	$109.77
Range Scientist		$92.93		$92.93	$14.77	$2.79	$7.11	$12.17	$0.00	$129.77
Senior Planning Engineer					$14.77					
Project Engineer					$14.77					
Mechanic/Fitter					$14.77					
					$14.77					
					$14.77					
					$14.77					
					$14.77					

NOTES:

(9) Project Manager:	R.S.Means 2022 Q2 (01 31 1320 0200 Total Incl.O&P-10%) Adjusted for Elko, NV
(9) Foreman Source:	R.S.Means 2022 Q2 (01 31 1320 0200 Total Incl.O&P-10%) Adjusted for Elko, NV
(9) Techical Labor Source:	Wood plc 2022 Adjusted for Zone,Tax and Ins.
Other Labor Source:	
Other Labor Source:	
†Additional User Markups	
(These are added by the user to the	
base rate to account for site-specific	
conditions or corporate requirements)	

Closure Cost Estimate
Equipment Costs

Project Name: REX Exploration Montrose County Colorado- Notice or Exploration
Date of Submittal: December 2022
File Name: REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: 20220801_SRCE_Cost_Data_File_1_12_Std_2022.xlsm
Monthly Rental Basis: 40 hrs month

EQUIPMENT RENTAL RATE TABLE

EQUIPMENT TYPE (1)	Monthly Owner/Rental Rate	Equipment Hourly Rate	Fuel/Lube/ Wear	Total Rate
Bulldozers				
D6R	$4,500.00	$112.50	$37.41	$149.91
D6R w/ Winch			$21.13	$21.13
D7R	$5,090.00	$127.25	$41.63	$168.88
D8R	$9,120.00	$228.00	$55.87	$283.87
D9R	$12,215.00	$305.38	$79.51	$384.88
D10R	$16,880.00	$422.00	$102.07	$524.07
D11R	N/A	$0.00	$89.57	$89.57
Wheeled Dozers				
824G			$36.34	$36.34
834G			$42.59	$42.59
844			$50.70	$50.70
854G			$64.22	$64.22
Motor Graders				
120H	$4,240.00	$106.00	$41.60	$147.60
14G/H	$6,045.00	$151.13	$60.98	$212.11
16G/H	N/A	$0.00	$76.22	$76.22
24M			$52.39	$52.39
Track Excavators				
312C	$2,015.00	$50.38	$16.98	$67.36
320C	$2,750.00	$68.75	$28.35	$97.10
325C	$3,565.00	$89.13	$35.66	$124.78
330C	$4,920.00	$123.00	$43.20	$166.20
345B	$6,490.00	$162.25	$53.93	$216.18
365BL			$44.62	$44.62
385BL	$9,965.00	$249.13	$84.28	$333.41
Scrapers				
631G	$7,845.00	$196.13	$90.93	$287.06
637G	N/A	$0.00	$80.28	$80.28
Wheeled Loaders				
924G	$1,930.00	$48.25	$25.62	$73.87
928G	$2,060.00	$51.50	$28.52	$80.02
950G	$3,310.00	$82.75	$37.34	$120.09
966G	$4,880.00	$122.00	$49.29	$171.29
972G	$6,280.00	$157.00	$55.48	$212.48
980G	$6,280.00	$157.00	$62.03	$219.03
988G	$10,390.00	$259.75	$88.81	$348.56
990			$57.46	$57.46
992G	N/A	$0.00	$77.74	$77.74
994D			$121.68	$121.68
L2350			$223.08	$223.08
Shovels				
PC2000			$125.06	$125.06
PC3000			$169.00	$169.00
PC4000			$236.60	$236.60
PC5500			$402.22	$402.22
PC8000			$503.62	$503.62
Hydraulic Hammers				
H-120 (fits 325)	$2,505.00	$62.63	$7.00	$69.63
H-160 (fits 345)	$4,920.00	$123.00	$13.68	$136.68
H-180 (fits 365/385)	$6,490.00	$162.25	$16.21	$178.46
Demolition Shears				
S340 (fits 322/325/330)				$0.00
S365 (fits 330/345)				$0.00
S390 (fits 365/385)				$0.00
Demolition Grapples				
G315 (fits 322/325)				$0.00
G320 (fits 325/330)				$0.00
G330 (fits 345/365)				$0.00
Other Equipment				
420D 4WD Backhoe	$1,190.00	$29.75	$21.07	$50.82
428D 4WD Backhoe	$1,485.00	$37.13	$20.91	$58.03
CS533E Vibratory Roller	$1,375.00	$34.38	$12.68	$47.05
CS633E Vibratory Roller			$16.06	$16.06
CP533E Sheepsfoot Compactor			$12.68	$12.68
CP633E Sheepsfoot Compactor			$16.06	$16.06
Light Truck - 1.5 Ton	$1,679.00	$41.98	$5.42	$47.40
Supervisor's Truck	$886.00	$22.15	$3.73	$25.88
Flatbed Truck	$1,679.00	$41.98	$17.84	$59.81
Air Compressor + tools	$1,337.00	$33.43	$3.38	$36.81
Welding Equipment	$727.00	$18.18	$6.76	$24.94
Heavy Duty Drill Rig	$5,745.00	$143.63	$40.56	$184.19
Pump (plugging) Drill Rig	$5,745.00	$143.63	$33.80	$177.43
Concrete Pump	$3,735.00	$93.38	$33.80	$127.18
Gas Engine Vibrator	$137.40	$3.44	$3.38	$6.82
Generator 5KW	$384.80	$9.62	$5.07	$14.69
HDEP Welder (pipe or liner)	$1,504.00	$37.60	$6.76	$44.36
5 Ton Crane	$1,716.00	$42.90	$10.14	$53.04
20 Ton Crane	$10,330.00	$258.25	$13.52	$271.77
50 Ton Crane	$10,330.00	$258.25	$15.89	$274.14
120 Ton Crane			$17.58	$17.58
Trucks				
725	$6,700.00	$167.50	$49.42	$216.92
730	$6,700.00	$167.50	$51.11	$218.61
735	$6,700.00	$167.50	$64.55	$232.05
740	$6,700.00	$167.50	$66.73	$234.23
769D	N/A	$0.00	$31.27	$31.27
773E	N/A	$0.00	$39.72	$39.72
777D	N/A	$0.00	$56.62	$56.62
785C			$81.97	$81.97
793C			$141.12	$141.12
797B			$198.58	$198.58
613E (5,000 gal) Water Wagon	$2,801.24	$70.03	$31.83	$101.86
621E (8,000 gal) Water Wagon	$4,740.27	$118.51	$53.37	$171.87
777D Water Truck			$56.62	$56.62
785C Water Truck			$81.97	$81.97
Dump Truck (10-12 yd^3)	$3,795.00	$94.88	$18.70	$113.57

NOTES:

(1) Power Equipment Source:	
(2) Power Equipment Type:	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels
(3) Drilling Equipment Source:	RS Means Heavy Construction (2022 Q2)
(4) Other Equipment Source:	RS Means Heavy Construction (2022 Q2)
(5) Drill rig includes support (pipe) truck	

Closure Cost Estimate
Equipment Costs

Project Name: REX Exploration Montrose County Colorado- Notice or Exploration
Date of Submittal: December 2022
File Name: REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: 20220801_SRCE_Cost_Data_File_1_12_Std_2022.xlsm

FUEL, LUBE AND WEAR CALCULATIONS

EQUIPMENT TYPE	PM Cost Per Hour (1)	Under carriage or Tires (2)	G.E.T Consumption (3)	Fuel Use Rate gal/hr (4)	Cost@ 3.38/gal	Total Hourly Equipment Cost
Bulldozers						
D6R	$9.82		$6.46	6.25	$21.13	$37.41
D6R w/ Winch				6.25	$21.13	$21.13
D7R	$9.82		$6.46	7.50	$25.35	$41.63
D8R	$10.36		$12.55	9.75	$32.96	$55.87
D9R	$11.82		$19.52	14.25	$48.17	$79.51
D10R	$13.91		$27.32	18.00	$60.84	$102.07
D11R	N/A		N/A	26.50	$89.57	$89.57
Wheeled Dozers						
824G		$0.00		10.75	$36.34	$36.34
834G		$0.00		12.60	$42.59	$42.59
844		$0.00		15.00	$50.70	$50.70
854G		$0.00		19.00	$64.22	$64.22
Motor Graders						
120H	$5.97	$8.67	$13.44	4.00	$13.52	$41.60
14G/H	$7.44	$13.00	$19.42	6.25	$21.13	$60.98
16G/H	$7.78	$16.57	$26.52	7.50	$25.35	$76.22
24M				15.50	$52.39	$52.39
Track Excavators						
312C	$5.61		$5.02	1.88	$6.35	$16.98
320C	$5.99		$5.80	4.90	$16.56	$28.35
325C	$6.03		$7.32	6.60	$22.31	$35.66
330C	$7.43		$8.05	8.20	$27.72	$43.20
345B	$9.86		$8.24	10.60	$35.83	$53.93
365BL				13.20	$44.62	$44.62
385BL	$8.27		$16.86	17.50	$59.15	$84.28
Scrapers						
631G	$9.97	$19.69	$10.57	15.00	$50.70	$90.93
637G	N/A	$0.00	N/A	23.75	$80.28	$80.28
Wheeled Loaders						
924G	$4.96	$5.60	$5.76	2.75	$9.30	$25.62
928G	$5.33	$5.60	$5.76	3.50	$11.83	$28.52
950G	$6.63	$6.47	$10.72	4.00	$13.52	$37.34
966G	$6.91	$9.49	$13.45	5.75	$19.44	$49.29
972G	$7.82	$9.49	$17.04	6.25	$21.13	$55.48
980G	$7.82	$11.82	$17.04	7.50	$25.35	$62.03
988G	$14.64	$15.01	$18.26	12.10	$40.90	$88.81
990				17.00	$57.46	$57.46
992G	N/A	$0.00	N/A	23.00	$77.74	$77.74
994D				36.00	$121.68	$121.68
L2350				66.00	$223.08	$223.08
Shovels						
PC2000				37.00	$125.06	$125.06
PC3000				50.00	$169.00	$169.00
PC4000				70.00	$236.60	$236.60
PC5500				119.00	$402.22	$402.22
PC8000				149.00	$503.62	$503.62
Hydraulic Hammers						
H-120 (fits 325)	N/A		$7.00			$7.00
H-160 (fits 345)	N/A		$13.68			$13.68
H-180 (fits 365/385)	N/A		$16.21			$16.21
Demolition Shears						
S340 (fits 322/325/330)	N/A					$0.00
S365 (fits 330/345)	N/A					$0.00
S390 (fits 365/385)	N/A					$0.00
Demolition Grapples						
G315 (fits 322/325)	N/A					$0.00
G320 (fits 325/330)	N/A					$0.00
G330 (fits 345/365)	N/A					$0.00
Other Equipment						
420D 4WD Backhoe	$5.52	$0.94	$4.47	3.00	$10.14	$21.07
428D 4WD Backhoe	$5.23	$0.94	$4.60	3.00	$10.14	$20.91
CS533E Vibratory Roller			N/A	3.75	$12.68	$12.68
CS633E Vibratory Roller			N/A	4.75	$16.06	$16.06
CP533E Sheepsfoot Compactor			N/A	3.75	$12.68	$12.68
CP633E Sheepsfoot Compactor			N/A	4.75	$16.06	$16.06
Light Truck - 1.5 Ton		$0.35	N/A	1.50	$5.07	$5.42
Supervisor's Truck		$0.35	N/A	1.00	$3.38	$3.73
Flatbed Truck		$1.95	N/A	4.70	$15.89	$17.84
Air Compressor + tools			N/A	1.00	$3.38	$3.38
Welding Equipment			N/A	2.00	$6.76	$6.76
Heavy Duty Drill Rig			N/A	12.00	$40.56	$40.56
Pump (plugging) Drill Rig			N/A	10.00	$33.80	$33.80
Concrete Pump			N/A	10.00	$33.80	$33.80
Gas Engine Vibrator			N/A	1.00	$3.38	$3.38
Generator 5KW			N/A	1.50	$5.07	$5.07
HDEP Welder (pipe or liner)			N/A	2.00	$6.76	$6.76
5 Ton Crane			N/A	3.00	$10.14	$10.14
20 Ton Crane			N/A	4.00	$13.52	$13.52
50 Ton Crane			N/A	4.70	$15.89	$15.89
120 Ton Crane			N/A	5.20	$17.58	$17.58
Trucks						
725	$10.98	$18.55	$4.01	4.70	$15.89	$49.42
730	$10.98	$18.55	$4.01	5.20	$17.58	$51.11
735	$10.98	$24.72	$4.01	7.35	$24.84	$64.55
740	$10.98	$26.90	$4.01	7.35	$24.84	$66.73
769D	N/A	$0.00	N/A	9.25	$31.27	$31.27
773E	N/A	$0.00	N/A	11.75	$39.72	$39.72
777D	N/A	$0.00	N/A	16.75	$56.62	$56.62
785C				24.25	$81.97	$81.97
793C				41.75	$141.12	$141.12
797B				58.75	$198.58	$198.58
613E (5,000 gal) Water Wagon	$6.59	$4.96		6.00	$20.28	$31.83
621E (8,000 gal) Water Wagon	$9.32	$7.71		10.75	$36.34	$53.37
777D Water Truck				16.75	$56.62	$56.62
785C Water Truck				24.25	$81.97	$81.97
Dump Truck (10-12 yd3) (5)	N/A	$1.12	N/A	5.20	$17.58	$18.70

Notes:

(1) PM Source:	Cashman Equipment Company (July 2022) unless noted
(2) Undercarriage Source:	Purcell Tire Quote: 2022
(3) G.E.T. Source:	Cashman Equipment Company (July 2022) unless noted
(4) Fuel Use Source:	Caterpillar Handbook, Edition 35, Ch. 20; or estimated average for smaller vehicles
(5) Dump Truck Oper. Cost Source:	Means Heavy Construction (2008)

Closure Cost Estimate
Equipment Costs

Project Name: REX Exploration Montrose County Colorado- Notice or Exploration
Date of Submittal: December 2022
File Name: REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: 20220801_SRCE_Cost_Data_File_1_12_Std_2022.xlsm

TIRE COST TABLES

Equipment	Tire Size	# of Tires Per Piece of Equipment	Cost Per Tire	Tire Cost (1)(2)	Life Expectency Hours (Low/Zone A) (3)	Tire Cost per Hour
Bulldozers						
D6R			N/A			
D6R w/ Winch			N/A			
D7R			N/A			
D8R			N/A			
D9R			N/A			
D10R			N/A			
D11R			N/A			
Wheeled Dozers						
824G	29.5R25	4		$0.00	3,500	$0.00
834G	35/65-R33	4		$0.00	3,500	$0.00
844	45/65-R39	4		$0.00	3,500	$0.00
854G	45/65-R45	4		$0.00	3,500	$0.00
Motor Graders						
120H	13PR24	6	$5,059.00	$30,354.00	3,500	$8.67
14G/H	20.5R25	6	$7,581.00	$45,486.00	3,500	$13.00
16G/H	23.5R25	6	$9,668.00	$58,008.00	3,500	$16.57
24M	23.5R25	6		$0.00	3,500	
Track Excavators						
312C			N/A			
320C			N/A			
325C			N/A			
330C			N/A			
345B			N/A			
365BL			N/A			
385BL			N/A			
Scrapers						
631G	37.25R35	4	$19,690.00	$78,760.00	4,000	$19.69
637G	37.25R35	4	N/A	$0.00	4,000	$0.00
Wheeled Loaders						
924G	17.5R25	4	$6,300.00	$25,200.00	4,500	$5.60
928G	17.5R25	4	$6,300.00	$25,200.00	4,500	$5.60
950G	26.5R25	4	$7,283.00	$29,132.00	4,500	$6.47
966G	26.5R25	4	$10,680.00	$42,720.00	4,500	$9.49
972G	26.5R25	4	$10,680.00	$42,720.00	4,500	$9.49
980G	29.5R25	4	$13,298.00	$53,192.00	4,500	$11.82
988G	35/65-33	4	$16,887.00	$67,548.00	4,500	$15.01
990	41.25/70-39	4		$0.00	4,500	
992G	45/65R45	4	N/A	$0.00	4,500	$0.00
994D	55/85R57	4		$0.00	4,500	
L2350	55/85R57	4		$0.00	4,500	
Shovels						
PC2000			N/A			
PC3000			N/A			
PC4000			N/A			
PC5500			N/A			
PC8000			N/A			
Hydraulic Hammers						
H-120 (fits 325)			N/A			
H-160 (fits 345)			N/A			
H-180 (fits 365/385)			N/A			
Demolition Shears						
S340 (fits 322/325/330)			N/A			
S365 (fits 330/345)			N/A			
S390 (fits 365/385)			N/A			
Demolition Grapples						
G315 (fits 322/325)			N/A			
G320 (fits 325/330)			N/A			
G330 (fits 345/365)			N/A			
Other Equipment						
420D 4WD Backhoe	340/80R18-19.5LR24	2	$1,409.50	$2,819.00	3,000	$0.94
428D 4WD Backhoe	340/80R18-16.9R28	2	$1,409.50	$2,819.00	3,000	$0.94
CS533E Vibratory Roller			N/A			
CS633E Vibratory Roller			N/A			
CP533E Sheepsfoot Compactor			N/A			
CP633E Sheepsfoot Compactor			N/A			
Light Truck - 1.5 Ton		4	266	$1,064.00	3,000	$0.35
Supervisor's Truck		4	266	$1,064.00	3,000	$0.35
Flatbed Truck		22	266	$5,852.00	3,000	$1.95
Air Compressor + tools			N/A			
Welding Equipment			N/A			
Heavy Duty Drill Rig		4		$0.00	3,000	
Pump (plugging) Drill Rig		4		$0.00	3,000	
Concrete Pump			N/A			
Gas Engine Vibrator			N/A			
Generator 5KW			N/A			
HDEP Welder (pipe or liner)			N/A			
5 Ton Crane		4		$0.00	3,000	
20 Ton Crane		4		$0.00	3,000	
50 Ton Crane		6		$0.00	3,000	
120 Ton Crane		6		$0.00	3,000	
Trucks						
725	23.5R25	6	$6,182.00	$37,092.00	2,000	$18.55
730	23.5R25	6	$6,182.00	$37,092.00	2,000	$18.55
735	26.5R25	6	$8,239.00	$49,434.00	2,000	$24.72
740	29.5R25	6	$8,966.00	$53,796.00	2,000	$26.90
769D	18.00R33	6	N/A	$0.00	6,000	$0.00
773E	24.00R35	6	N/A	$0.00	5,000	$0.00
777D	27.00R49	6	N/A	$0.00	5,000	$0.00
785C	33.00R51	6		$0.00	4,000	
793C	40.00R57	6		$0.00	4,000	
797B	40.00R57	6		$0.00	4,000	
613E (5,000 gal) Water Wagon	23.5R25	6	$4,959.00	$29,754.00	6,000	$4.96
621E (8,000 gal) Water Wagon	33.25R29	6	$10,282.00	$61,692.00	8,000	$7.71
777D Water Truck	27.00R49	6		$0.00	5,000	
785C Water Truck	33.00R51	6		$0.00	4,000	
Dump Truck (10-12 yd3)		10	$672.00	$6,720.00	6,000	$1.12

Notes:

(1) Unit Cost Basis:	Cost per set
(2) Cost Basis:	Total cost for all required tires.
(3) Tire Cost Source:	Purcell Tire Quote: 2022
(4) Tire Wear Source:	Caterpillar Handbook, Edition 35; Ch. 20

Closure Cost Estimate
Material Costs

Project Name: REX Exploration Montrose County Colorado- Notice or Exploration
Date of Submittal: December 2022
File Name: REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: 20220801_SRCE_Cost_Data_File_1_12_Std_2022.xlsm
Cost Estimate Type: Surety Cost Basis: N. Nevada Notice Level

Revegetation Materials

Seed Mixes

Seed Mix	Description		Cost/Acre
None			
Mix 1	Basins		$302.50
Mix 2	Low Hills		$332.75
Mix 3	Uplands		$363.00
Mix 4	Riparian or Custom		$393.25
User Mix 1	**West End Seed Mix CO**		**$586.50**
User Mix 2			
User Mix 3			
User Mix 4			
	Cost/lb	**lbs/Acre**	**Cost/Acre**
User Mix 5 (from Seed Mix sheet)	$0.00	$25.97	$0.00
Notes:			
	West End Seed Mix CO quote from Granite Seed		
	January 6, 2023 email		

Mulch

Item	Cost/lb	lbs/Acre	Cost/Acre
None			
Straw Mulch	$0.20		
Hydro Mulch	$0.36		
Timber Mulch			
Notes:			
	Granite Seed $500 per Ton in 50 lb bag Wood (Hydro) Mulch (2022)		

Closure Cost Estimate
Material Costs

Project Name: REX Exploration Montrose County Colorado- Notice or Exploration
Date of Submittal: December 2022
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Model Version: Version 1.4.1
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Amendments			
Item	**Cost/lb**	**lbs/Acre**	**Cost/Acre**
None			
Organic Matter	$0.80		$0.00
Treated Sludge			
Chemical	$0.67		$0.00
Notes:	Western Nevda Supply $33.30 per 50 lb. bag 15-15-15 (Adjusted from 2021 q		

Closure Cost Estimate
Material Costs

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Well Abandonment Materials

Description	Cost/50lb bag	Units	Cost/unit*
Cement	$8.11	cy	$38.63
Grout (Low Grade Bentonite)	$9.95	cy	$47.38
Inert Material/Cuttings		cy	
		cy	
		cy	

(1) Jentech Drilling Supply quote (2022) Type I,II Cement at $15.25 per 94 lb. bag
(2) Jentech Drilling Supply (2022) 3/8 in. Chunk Bentonite Hole Plug at $9.95 per 50 lb. bag (5.75 cf/bag at 43 gall

* Assumes 1 bag mixes with water to make 0.21 y3 or 0.16 m3 of grout/cement slurry.

Monitoring Costs

Description	Units	Cost/unit
Monitor Well Pump	ea.	$3,050.81
Sampling Supplies	ea.	$7.13
Water Analysis (Profile I) (1)	ea.	$411.00
Leach Test (MWMP) w/ analysis	ea.	$483.40
ABA + S speciation	ea.	$157.00
WAD Cyanide in water	ea.	$61.00
Water Analysis (Profile II) (1)	ea.	$461.00
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	

(1) WET Lab, Reno, Nevada (2022)
Well pump and Sample supply costs adjusted to 2022.
Original source unknown.

Closure Cost Estimate
Material Costs

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Fuel, Etc.

Description	Units	Cost/unit
Off-road Diesel - delivered (1)	$/gal	$3.380
Pickup Truck Mileage	$/mi	$0.585
Electical Power	$/kWh	$0.090

(1) Source: Oil Price Infomration Service , average annual cost including freight to Nevada (2022).

Source: Federal Government Vehicle Allowance Rate 2022

Source: NV Energy (2022) $0.08974

Closure Cost Estimate
Material Costs

Revegetation Method

Slopes

Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Waste Rock Dumps	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Heap Leach	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Tailings	**Hand Broadcast**	$175.00	$100.00	$275.00
Quarries & Borrow Pits	**Mechanical Broadcast**	$175.00	$100.00	$275.00

Flat Areas and Undifferentiated

Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Exploration Trenches	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Exploration Roads	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Waste Rock Dumps	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Heap Leach	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Tailings	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Quarries & Borrow Pits	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Roads	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Pits	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Haul Material	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Foundations & Buildings	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Sediment & Drainge Control	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Process Ponds	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Landfills	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Yards, Etc.	**Mechanical Broadcast**	$175.00	$100.00	$275.00
Revegetation Maintenance	**Mechanical Broadcast**	$175.00	$100.00	$275.00

Closure Cost Estimate
Misc. Unit Costs

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Revegetation

	Means Number	Unit	Crew	Daily Output	Daily Output User	Materials	Labor	Equipment	Total	Notes
Seeding - Broadcast Hand (1)		acres					$175.00	$100.00	$275.00	
Seeding - Broadcast Mechanical (1)		acres					$175.00	$100.00	$275.00	
Seeding - Drill (1)		acres		365			$175.00	$175.00	$350.00	
Seeding - Hydroseeding (1)				365			$338.00	$275.00	$613.00	
Shrub Planting - bare root 6-10 in (150- 250mm) (2)	02910-400-0561	ea.	1 Clab	365					$0.00	
Tree Planting - bare root 11-16 in (270- 400mm) (3)	02910-400-0562	ea.	1 Clab	260					$0.00	
Cactus Planting (4)		ea.	1 Clab						$0.00	
NOTES:										
(1) Seeding Source:	Source: Kelley Erosion Control (June 2022).									
(2) Shrub Source:										
(3) Tree Source:										
(4) Cactus Source:										

Building and Wall Demolition

Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data .
All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets

	Means Number	Unit	Crew	Daily Output	Daily Output User	Labor	Equipment	Premium	Total	Notes
Building Demolition										
Lg. steel	02220-110-0012	C.F.	B-8	21500		$0.16	$0.22		$0.38	
Lg. concrete	02220-110-0050	C.F.	B-8	15300		$0.22	$0.30		$0.52	
Lg. masonry	02220-110-0080	C.F.	B-8	20100		$0.17	$0.23		$0.40	
Lg. mixed	02220-110-0100	C.F.	B-8	20100		$0.17	$0.23		$0.40	
Sm. steel	02220-110-0500	C.F.	B-3	14800		$0.19	$0.17		$0.36	
Sm. concrete	02220-110-0600	C.F.	B-3	11300		$0.25	$0.22		$0.47	
Sm. masonry	02220-110-0650	C.F.	B-3	14800		$0.19	$0.17		$0.36	
Sm. wood	02220-110-0700	C.F.	B-3	14800		$0.19	$0.17		$0.36	
Wall Demolition										
Block 4 in (100 mm) thick	02220-130-2000	S.F.	1 Clab	180		$2.23	$0.00	20%	$2.68	
Block 6 in (150 mm) thick	02220-130-2040	S.F.	1 Clab	170		$2.36	$0.00	20%	$2.83	
Block 8 in (200 mm) thick	02220-130-2080	S.F.	1 Clab	150		$2.67	$0.00	20%	$3.20	
Block 12 in (300 mm) thick	02220-130-2100	S.F.	1 Clab	150		$2.67	$0.00	20%	$3.20	
Conc 6 in (150 mm) thick	02220-130-2400	S.F.	B-9	160		$18.13	$1.84	10%	$21.97	
Conc 8 in (200 mm) thick	02220-130-2420	S.F.	B-9	140		$20.71	$2.10	10%	$25.09	
Conc 10 in (250 mm) thick	02220-130-2440	S.F.	B-9	120		$24.17	$2.45	10%	$29.28	
Conc 12 in (300 mm) thick	02220-130-2500	S.F.	B-9	100		$29.00	$2.94	10%	$35.13	

Closure Cost Estimate
Misc. Unit Costs

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Waste Disposal

Unit rates from Means Heavy Construction 2006 Edition by permission of R.S.Means/Reed Construction Data .

	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment		Total	Notes
Rubbish Handling										
Dumpster delivery (average for all sizes)	02220-350-0910	ea.			$61.50				$61.50	
Haul (average for all sizes)	02220-350-0920	ea.			$192.00				$192.00	
Rent per month (average for all sizes)	02220-350-0940	ea.			$65.50				$65.50	
Disposal fee per ton (tonne) (average for all sizes)	02220-350-0950	ton			$72.00				$72.00	
NOTES:										
Dumpster Cost Source	R.S. Means Heavy Construction (2022 Q2).									
Dumpster Disposal Fee Source:	R.S. Means Heavy Construction (2022 Q2).									
Hazardous Material Handling - Solids (+ Liquids in drums)										
Pickup fees 55 gal (200 L). drums	02110-300-1100	ea.			$280.00				$280.00	
Bulk material (average)	02110-300-1220/1230	ton			$456.00				$456.00	
Transport - truck load (80 drums, 25 cy (m3), 18 tons)	02110-300-1260/1270	mile			$6.58				$6.58	
Dump site solid disposal fee	02110-300-6000/6020	ton			$322.00				$322.00	
NOTES:										
Solid Handling Cost Source	R.S. Means Heavy Construction (2022 Q2).									
Solid Disposal Fee Source:	2022 Q2 R.S. Means Heavy Const. ave. 02 81									
Hazardous Material Handling - Liquids										
Vacuum Truck Pickup (2200 gal/8300 L)	02110-300-3110	hr.			$164.00				$164.00	
Vacuum Truck Pickup (5000 gal/19000 L)	02110-300-3120	hr.			$238.00				$238.00	
Dump site liquid disposal fee	02110-300-6000/6020	ton			$322.00				$322.00	
NOTES:										
Liquid Handling Cost Source	R.S. Means Heavy Construction (2022 Q2).									
Liquid Disposal Fee Source:	2022 Q2 R.S. Means Heavy Const. ave. 02 81									
Hydrocarbon Contaminated Soils (HCS)										
Insitu Biotreatment	02115-200-2020/2021	C.Y.			$21.23				$21.23	
HCS disposal fee	02115-200-2050/2055	C.Y.			$311.50				$311.50	
NOTES:										
Insitu Treatement Cost Source	2022 Q2 R.S. Means Heavy Const., ave. 02 65									
HCS Disposal Fee Source:	2022 Q2 R.S. Means Heavy Const., ave. 02 65									

Concrete Structure Installation

Weekly dumpster rental rates from Means Heavy Construction 2005 Edition with permission by R.S.Means/Reed Construction Data .
Weekly dumpster rental rates include haul to off-site disposal site and disposal fees

	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Reinforced Concrete Bulkheads and Shaft Covers										
Grade walls - 15 in (400mm) thick, 8 ft (2.5m) high	03310-240-4300	C.Y.	C-14D	80.02	$193.00	$149.35	$15.98		$358.33	includes reinforcing
Grade walls - 15 in (400mm) thick, 12 ft (3.7m) high	03310-240-4350	C.Y.	C-14D	26.2	$193.00	$456.13	$48.82		$697.95	includes reinforcing
Elevated conc, 1-way beam & slab - 15ft (4.6m) span	03310-240-2700	C.Y.	C-14B	20.59	$355.00	$592.34	$62.12		$1,009.46	includes reinforcing
Elevated conc, 1-way beam & slab - 25ft (7.5m) span	03310-240-2750	C.Y.	C-14B	28.36	$335.00	$430.05	$45.10		$810.15	includes reinforcing
Bat Gate/Foam Plug Installation										
Bat Gate (5)		ea.			$3,684.51					materials $/ea. Installed
Culvert Gate (5)		ea.			$7,369.01					materials $/ea. Installed
Adit Foam Plug (6)		ea./C.Y.			$368.45					materials $/cy placed
Production Opening Foam Plug (6)		ea./C.Y.			$368.45					materials $/cy placed
NOTES:										
(5) Bat Gate Source:	NV BLM, 2/2006: 8 hr + 1hr mob/demob + 1hr setup per gate (adjusted to 2022)									
(6) Foam Plug Source:	NV BLM, 2/2006: 8 hr+ 1hr mob/demob + 1hr setup per adit; 16 hrs per production opening (adjusted to 2022)									

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Misc. Linear Projects

Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data .
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	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Fencing Installation										
Barbed 3-strand	02820-170-1650	L.F.	B-80A	760	$0.87	$1.58	$0.50		$2.95	
Barbed 4-strand	extrapolated	L.F.	B-80A	570	$1.16	$2.11	$0.67		$3.94	
Barbed 5-strand	02820-130-0920	L.F.	B-80A	456	$1.45	$2.64	$0.83		$4.92	
Chain link 8-10ft (2.5-3m) Install	02820-130-0920	L.F.	B-80C	180	$65.50	$6.68	$2.11		$74.29	
Wood stockade fence 6 ft (2 m) high - Install	02820-510-1240	L.F.	B-80C	150	$22.50	$8.02	$2.53		$33.05	
	user	L.F.							$0.00	
	user	L.F.							$0.00	
	user	L.F.							$0.00	
	user	L.F.							$0.00	
Fencing Removal										
Barbed 3-strand Removal	02220-220-1600	L.F.	2 Clab	430		$1.86	$0.88		$2.74	
Barbed 4-strand Removal	extrapolated	L.F.	2 Clab	355		$2.26	$1.07		$3.33	
Barbed 5-strand Removal	02220-220-1650	L.F.	2 Clab	280		$2.86	$1.35		$4.21	
Chain link 8-10 ft (2.5-3 m) Removal	02220-220-1700	L.F.	B-6	445		$3.08	$1.44		$4.52	
Wood, all types 4-6 ft ("1.5-2 m) high - Removal	02220-220-1775	L.F.	2 Clab	430		$1.86	$0.88		$2.74	
	user	L.F.								
	user	L.F.							$0.00	
	user	L.F.							$0.00	
	user	L.F.							$0.00	
Culvert Removal										
12 in (300 mm) Diameter	02220-220-2900	L.F.	B-6	175		$7.84	$3.66		$11.50	
18 in (450 mm) Diameter	02220-220-2930	L.F.	B-6	150		$9.14	$4.27		$13.41	
24 in (600 mm) Diameter	02220-220-2960	L.F.	B-6	120		$11.43	$5.33		$16.76	
36 in (1m) Diameter	02220-220-3000	L.F.	B-6	90		$15.24	$7.11		$22.35	
Pipeline Removal										
0.75 in (20mm) - 4 in (100 mm) diameter	02220-381-1600	L.F.	B-20	700		$2.22	$0.54		$2.76	
6 in (150 mm) - 8 in (200 mm)	02220-381-1700	L.F.	B-20	500		$3.11	$0.76		$3.87	
10 in (250 mm) - 18 in (450 mm)	02220-381-1800	L.F.	B-20	300		$5.18	$1.26		$6.44	
20 in (500 mm) - 36 in (1 m)	02220-381-1900	L.F.	B-20	200		$7.77	$1.90		$9.67	
Pipe and Drainpipe Installation										
Water 4in (100mm) 40ft (12m) length, welded HDPE	02510-760-0100	L.F.	B-22A	400	$2.28	$5.89	$6.52		$14.69	
Water 6in (150mm) 40ft (12m) length, welded HDPE	02510-760-0200	L.F.	B-22A	380	$4.93	$6.20	$6.87		$18.00	
Water 12in (300mm) 40ft (12m) length, welded HDPE	02510-760-0500	L.F.	B-22A	260		$9.06	$10.04		$19.10	
Drain 4in (100mm) perforated PVC	02620-630-2100	L.F.	B-14	315	$3.41	$9.30	$2.49		$15.20	
Drain 6in (150mm) perforated PVC	02620-630-2110	L.F.	B-14	300	$6.55	$9.76	$2.62		$18.93	
Drain 4in (100mm) corrugated, perf or plain	02620-660-0040	L.F.	2 Clab	1200	$1.39	$0.67	$0.32		$2.38	
Drain 6in (150mm) corrugated., perf or plain	02620-660-0060	L.F.	2 Clab	900	$3.51	$0.89	$0.42		$4.82	

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Drain Rock Preparation										
Crushing		C.Y.							$0.50	
Screening		C.Y.							$0.50	
TOTAL									$1.00	
Misc.										
Backhoe work	02210-700-0120	C.Y.	B-11M	28		$20.65	$14.52		$35.17	
Powerline and Transformer Removal										
Single Pole		mile							$51,208.05	
Double Pole		mile							$58,523.49	
Transformer (9)		ea.							$64,549.13	
NOTES:										
(7) Single Pole Source:	NV Energy estimate (2009) Adjusted to 2022									
(8) Double Pole Source:	NV Energy estimate (2009) Adjusted to 2022									
(9) Transformer Source:	NV Energy estimate (2018) adjusted to 2022									

Erosion and Sedimentation Control

Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data .
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	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Rip-Rap & Rock Lining										
Rip-Rap 3/8 to 1/4 CY (m3) pieces, grouted	02370-450-0110	S.Y.	B-13	80	$27.00	$36.61	$27.18		$90.79	assumes on-site source of rip-rap
Rip-Rap 18 in (450 mm) min thick, no grout	02370-450-0200	S.Y.	B-13	53	$8.45	$55.26	$41.02		$104.73	assumes on-site source of rip-rap
Gabions, 6 in (150 mm) deep	02370-450-0400	S.Y.	B-13	200	$6.60	$14.64	$10.87		$32.11	assumes on-site source rock fill for gabions
Gabions, 9 in (250 mm) deep	02370-450-0500	S.Y.	B-13	163	$11.95	$17.97	$13.34		$43.26	assumes on-site source rock fill for gabions
Gabions, 12 in (300 mm) deep	02370-450-0200	S.Y.	B-13	153	$13.25	$19.14	$14.21		$46.60	assumes on-site source rock fill for gabions
Gabions, 18 in (450 mm) deep	02370-450-0200	S.Y.	B-13	102	$28.00	$28.71	$21.32		$78.03	assumes on-site source rock fill for gabions
Gabions, 36 in (1m) deep	02370-450-0200	S.Y.	B-13	60	$31.00	$48.81	$36.24		$116.05	assumes on-site source rock fill for gabions
HDEP Liner Installation										
Finish grading large area	2310-100-0100	S.F.	B-11L	18000		$0.05	$0.09		$0.14	
Compaction-riding, vibrating roller - 12in (300mm) lifts	2315-310-5100	C.Y.	B-10Y	2600		$0.37	$0.14		$0.51	
60 mil HDPE	2660-610-0010	S.F.	3 Skwk	1600	$1.10	$1.12	$0.48		$2.70	
80 mil HDPE	user	S.F.	3 Skwk	149		$12.05	$5.11		$17.16	
40 mil VLDPE	user	S.F.	3 Skwk	150		$11.97	$5.08		$17.05	
	user	S.F.	3 Skwk	149		$12.05	$5.11		$17.16	
	user	S.F.	3 Skwk	149		$12.05	$5.11		$17.16	

Construction Management Support

Office Trailer, Furnished, no hook-ups	0150-500-0250	mo.			$240.00				$240.00	
Toilet Portable, chemical	1590-400-6410	mo.			$229.40				$229.40	
TOTAL					$469.40				$469.40	

Pump and Casing Removal

	Pump Type	Measurement	Unit				Labor	Equipment		Total	Notes
Pump Removal											
Submersible		ft to pump	L.F.				$12.45	$29.32		$41.77	
Line Shaft		ft to pump	L.F.				$12.45	$29.32		$41.77	
NOTES:											
(10) Pump Removal Source:	Boart Longyear Quote: 2022										

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EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
RIPPING					
Rip road					
Waste rock dumps, heaps, tails - rip flat surfaces					
Surface preparation					
Scarify					
Small Dozer w/ multi-shank					
D7R		1	$168.88	$71.22	$240.10
Totals			$168.88	$71.22	$240.10
Medium Dozer w/ multi-shank					
D9R		1	$384.88	$71.22	$456.10
Totals			$384.88	$71.22	$456.10
Large Dozer w/ multi-shank					
D10R		1	$524.07	$71.22	$595.29
Totals			$524.07	$71.22	$595.29
Grader w/ multi-shank					
16G/H		1	$76.22	$72.28	$148.50
Totals			$76.22	$72.28	$148.50
GRADING					
Grading storage and structure areas					
Grading waste rock dumps and heaps					
Grading landfills					
Constructing pit safety berms					
Small Dozer Fleet					
D7R		1	$168.88	$71.22	$240.10
Totals			$168.88	$71.22	$240.10
Medium Dozer Fleet					
D9R		1	$384.88	$71.22	$456.10
Totals			$384.88	$71.22	$456.10
Large Dozer Fleet					
D10R		1	$524.07	$71.22	$595.29
Totals			$524.07	$71.22	$595.29
EXPLORATION GRADING					
Backfilling and grading exploration trenches					
Grading flat exploration roads					
Small Dozer Fleet					
D6R		1	$149.91	$71.22	$221.13
Totals			$149.91	$71.22	$221.13
Medium Dozer Fleet					
D7R		1	$168.88	$71.22	$240.10
Totals			$168.88	$71.22	$240.10
Large Dozer Fleet					
D8R		1	$283.87	$71.22	$355.09
Totals			$283.87	$71.22	$355.09

Project Name: REX Exploration Montrose County Colorado- Notice or Exploration
Date of Submittal: December 2022
File Name: REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: 20220801_SRCE_Cost_Data_File_1_12_Std_2022.xlsm
Cost Estimate Type: Surety Cost Basis: N. Nevada Notice Level

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
EXCAVATING					
Earthen Berms					
Diversion ditch excavation and backfill					
Underground openings backfill - excavate and place					
Pit berm construction (excavator option)					
Small Excavator					
325C		1	$124.78	$72.28	$197.06
Totals			$124.78	$72.28	$197.06
Medium Excavator					
345B		1	$216.18	$72.28	$288.46
Totals			$216.18	$72.28	$288.46
Large Excavator					
385BL		1	$333.41	$72.28	$405.69
Totals			$333.41	$72.28	$405.69
EXCAVATE AND RECONTOUR					
Recontour large roads (haul roads, access roads, etc.)					
Ponds - Excavate and pull liner and bury					
Small Excavator + Dozer					
325C		1	$124.78	$72.28	$197.06
D7R		1	$168.88	$71.22	$240.10
Total Equipment			$293.66	$143.50	$437.16
Medium Excavator + Dozer					
345B		1	$216.18	$72.28	$288.46
D9R		1	$384.88	$71.22	$456.10
Totals			$601.06	$143.50	$744.56
Large Excavator + Dozer					
385BL		1	$333.41	$72.28	$405.69
D10R		1	$524.07	$71.22	$595.29
Totals			$857.48	$143.50	$1,000.98
EXPLORATION ROAD/PAD RECONTOUR					
Recontour small roads (exploration roads, service roads, etc.)					
Cut and Fill reclamation on slopes					
Drill pad recountour					
Drill sump backfill					
Small Dozer					
D6R		1	$149.91	$71.22	$221.13
Totals			$149.91	$71.22	$221.13
Large Dozer					
D8R		1	$283.87	$71.22	$355.09
Totals			$283.87	$71.22	$355.09
Grader					
14G/H		1	$212.11	$72.28	$284.39
Totals			$212.11	$72.28	$284.39
Small Excavator					
320C		1	$97.10	$72.28	$169.38
Totals			$97.10	$72.28	$169.38
Medium Excavator					
325C		1	$124.78	$72.28	$197.06
Totals			$124.78	$72.28	$197.06

Project Name: REX Exploration Montrose County Colorado- Notice or Exploration
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File Name: REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm
Model Version: Version 1.4.1
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Cost Estimate Type: Surety Cost Basis: N. Nevada Notice Level

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
LOAD, HAUL AND PLACE MATERIAL					
Rock placement					
Haul overburden for backfill					
Haul borrow for backfill					
Haul cover or growth media					
Small Truck/Loader Fleet					
725		Calculated	$216.92	$43.14	$260.06
966G	**Loader**	1	$171.29	$72.28	$243.57
D7R		1	$168.88	$71.22	$240.10
Totals			$557.09	$186.64	$743.73
Medium Truck/Loader Fleet					
740		Calculated	$234.23	$43.14	$277.37
988G	**Loader**	1	$348.56	$72.28	$420.84
D8R		1	$283.87	$71.22	$355.09
Totals			$866.66	$186.64	$1,053.30
Large Truck/Loader Fleet					
769D		Calculated	$31.27	$43.14	$74.41
988G	**Loader**	1	$348.56	$72.28	$420.84
D7R		1	$168.88	$71.22	$240.10
Totals			$548.71	$186.64	$735.35
Extra Large Truck/Loader Fleet					
777D		Calculated	$56.62	$43.14	$99.76
992G	**Loader**	1	$77.74	$72.28	$150.02
D7R		1	$168.88	$71.22	$240.10
Totals			$303.24	$186.64	$489.88
Scraper/Dozer Fleet					
631G		Calculated	$287.06	$71.22	$358.28
D10R		1	$524.07	$71.22	$595.29
D7R		1	$168.88	$71.22	$240.10
Totals			$980.01	$213.66	$1,193.67
Tandem Scraper Fleet					
637G		2	$80.28	$72.28	$152.56
D7R		1	$168.88	$71.22	$240.10
Totals			$249.16	$143.50	$392.66
MISC. LOAD AND HAUL AND EARTHWORKS					
Sludge removal					
Drainage controls					
Misc. - Cat 325B Excavator / 10-12 yd3 Truck					
325C		1	$124.78	$72.28	$197.06
Dump Truck (10-12 yd3)		1	$113.57	$43.14	$156.71
Totals			$238.35	$115.42	$353.77
Misc. - Cat D9R Dozer/ Loader (5 yd3) / 10-12 yd3 Truck					
D9R		1	$384.88	$71.22	$456.10
966G		1	$171.29	$72.28	$243.57
Dump Truck (10-12 yd3)		1	$113.57	$43.14	$156.71
Totals			$669.74	$186.64	$856.38
Misc. - Cat D6 Dozer / Cat 966 Loader / 10-12 yd3 Truck					
D6R		1	$149.91	$71.22	$221.13
966G		1	$171.29	$72.28	$243.57
Dump Truck (10-12 yd3)		1	$113.57	$43.14	$156.71
Totals			$434.77	$186.64	$621.41

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File Name: REX_NOI_SRCE_Ver_1_4_1_017_NVb.xlsm
Model Version: Version 1.4.1
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Cost Estimate Type: Surety Cost Basis: N. Nevada Notice Level

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
CONCRETE BREAKING					
Slab demolition					
Footing demolition					
Wall demolition					
Small - Cat 325B Excavator w/ H140D s Hammer					
325C		1	$124.78	$72.28	$197.06
H-120 (fits 325)		1	$69.63	$0.00	$69.63
D9R		1	$384.88	$71.22	$456.10
Totals			$579.29	$143.50	$722.79
Medium - Cat 345B Excavator w/ H180D s Hammer					
345B		1	$216.18	$72.28	$288.46
H-160 (fits 345)		1	$136.68	$0.00	$136.68
D9R		1	$384.88	$71.22	$456.10
Totals			$737.74	$143.50	$881.24
Large - Cat 385B Excavator w/ H180D s Hammer					
385BL		1	$333.41	$72.28	$405.69
H-180 (fits 365/385)		1	$178.46	$0.00	$178.46
D9R		1	$384.88	$71.22	$456.10
Totals			$896.75	$143.50	$1,040.25
DRILL HOLE ABANDONMENT					
Drill Hole - Grout or Cement					
Pump (plugging) Drill Rig		1	$177.43	$71.22	$248.65
Driller's Helper		2	$0.00	$100.82	$100.82
Totals			$177.43	$172.04	$349.47
Drill Hole - Inert Media (Means Crew B-11M+ 1 Laborer)					
420D 4WD Backhoe		1	$50.82	$72.28	$123.10
General Laborer		1	$0.00	$50.10	$50.10
Totals			$50.82	$122.38	$173.20
Drill Hole - Casing Perforation or Removal					
Heavy Duty Drill Rig		1	$184.19	$71.22	$255.41
Driller's Helper		2	$0.00	$100.82	$100.82
Totals			$184.19	$172.04	$356.23
MAINTENANCE FLEET					
Road Grading, Dust Suppression, Clean Up					
Maintenance - Small Water Truck and Cat 14G Grader					
613E (5,000 gal) Water Wagon		1	$101.86	$43.14	$145.00
120H		1	$147.60	$72.28	$219.88
Totals			$249.46	$115.42	$364.88
Maintenance - Medium Water Truck and Cat 16G Grader					
613E (5,000 gal) Water Wagon		1	$101.86	$43.14	$145.00
14G/H		1	$212.11	$72.28	$284.39
Totals			$313.97	$115.42	$429.39
Maintenance - Large Water Truck and Cat 16G Grader					
621E (8,000 gal) Water Wagon		1	$171.87	$43.14	$215.01
16G/H		1	$76.22	$72.28	$148.50
Totals			$248.09	$115.42	$363.51
PROJECT SUPERVISION					
Foreman		1	$0.00	$93.43	$93.43
Supervisor's Truck		1	$25.88	$0.00	$25.88
Totals			$25.88	$93.43	$119.31

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Model Version: Version 1.4.1
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EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
MEANS CREW DEFINITIONS					
Crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . For use with misc. unit costs where Means is the source for productivity					
1 Clab - Seedling Planting/Block Wall Demolition					
General Laborer		1	$0.00	$50.10	$50.10
Totals			$0.00	$50.10	$50.10
2 Clab - Barbed Wire/Wood Fence Removal, Drainpipe Installation, Pumping, Evaporation					
General Laborer		2	$0.00	$100.20	$100.20
Light Truck - 1.5 Ton		1	$47.40	$0.00	$47.40
Totals			$47.40	$100.20	$147.60
2 Clab + Excavator - Pond Liner Cut and Fold					
General Laborer		2	$0.00	$100.20	$100.20
325C		1	$124.78	$72.28	$197.06
Totals			$124.78	$172.48	$297.26
2 Clab + Welder - Bat Gates					
General Laborer		2	$0.00	$100.20	$100.20
Welding Equipment		1	$24.94	$72.28	$97.22
Light Truck - 1.5 Ton		1	$47.40	$0.00	$47.40
Totals			$72.34	$172.48	$244.82
3 Clab - Foam Adit Plugs					
General Laborer		2	$0.00	$100.20	$100.20
420D 4WD Backhoe		1	$50.82	$72.28	$123.10
Light Truck - 1.5 Ton		1	$47.40	$0.00	$47.40
Totals			$98.22	$172.48	$270.70
3 Clab + Welder - Culvert Bat Gate					
General Laborer		2	$0.00	$100.20	$100.20
Welding Equipment		1	$24.94	$72.28	$97.22
420D 4WD Backhoe		1	$50.82	$72.28	$123.10
Light Truck - 1.5 Ton		1	$47.40	$0.00	$47.40
Totals			$123.16	$244.76	$367.92
3 Clab D - 3 Laborers + Foreman - Decontamination					
General Laborer		3	$0.00	$150.30	$150.30
Foreman		1	$0.00	$93.43	$93.43
Supervisor's Truck		1	$25.88	$0.00	$25.88
Light Truck - 1.5 Ton		1	$47.40	$0.00	$47.40
Totals			$73.28	$243.73	$317.01
3 SKWK - Liner Installation					
Skilled Laborer		3	$0.00	$152.16	$152.16
HDEP Welder (pipe or liner)		1	$44.36	$0.00	$44.36
420D 4WD Backhoe		1	$50.82	$72.28	$123.10
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
Totals			$95.18	$224.44	$319.62

Project Name: REX Exploration Montrose County Colorado- Notice or Exploration
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Model Version: Version 1.4.1
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Cost Estimate Type: Surety Cost Basis: N. Nevada Notice Level

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-3 - Small Building Demoltion					
LABOR					
General Laborer		2	$0.00	$100.20	$100.20
Foreman		1	$0.00	$93.43	$93.43
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
EQUIPMENT					
928G		1	$80.02	$71.22	$151.24
Dump Truck (10-12 yd3)		2	$227.14	$86.28	$313.42
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
Totals			$307.16	$351.13	$658.29
B-6 - Chain Link Fence/Culvert Removal					
General Laborer		2	$0.00	$100.20	$100.20
928G		1	$80.02	$71.22	$151.24
Totals			$80.02	$171.42	$251.44
B-8 - Large Building Demolition					
LABOR					
General Laborer		2	$0.00	$100.20	$100.20
Foreman		1	$0.00	$93.43	$93.43
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
EQUIPMENT					
928G		1	$80.02	$71.22	$151.24
20 Ton Crane		1	$271.77	$72.28	$344.05
Dump Truck (10-12 yd3)		2	$227.14	$86.28	$313.42
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
			$0.00		$0.00
Totals			$578.93	$423.41	$1,002.34
B-9 - Concrete Wall Demolition					
General Laborer		4	$0.00	$200.40	$200.40
Foreman		1	$0.00	$93.43	$93.43
Air Compressor + tools			$36.81	$68.68	$105.49
Totals			$36.81	$362.51	$399.32

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Model Version: Version 1.4.1
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EQUIPMENT FLEETS

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B-10Y - General Compaction					
General Laborer		1	$0.00	$50.10	$50.10
CS533E Vibratory Roller		1	$47.05	$70.49	$117.54
Totals			$47.05	$120.59	$167.64
B-11L - Fine Grading for Evaporation Pond Liner Base					
General Laborer		1	$0.00	$50.10	$50.10
14G/H		1	$212.11	$72.28	$284.39
Totals			$212.11	$122.38	$334.49
B-11M - Backhoe Work					
420D 4WD Backhoe		1	$50.82	$72.28	$123.10
Totals			$50.82	$72.28	$123.10
B-12G - Rip-Rap Machine Placed (Modified)					
966G		1	$171.29	$72.28	$243.57
325C		1	$124.78	$72.28	$197.06
Light Truck - 1.5 Ton		1	$47.40	$0.00	$47.40
Totals			$343.47	$144.56	$488.03
B-13 - Grouted Rip-Rap & Gabion Baskets					
General Laborer		4	$0.00	$200.40	$200.40
Foreman		1	$0.00	$93.43	$93.43
20 Ton Crane		1	$271.77	$72.28	$344.05
Totals			$271.77	$366.11	$637.88
B-14 PVC Drain Pipe Installation					
Foreman		1	$0.00	$93.43	$93.43
General Laborer		4	$0.00	$200.40	$200.40
420D 4WD Backhoe		1	$50.82	$72.28	$123.10
Light Truck - 1.5 Ton		1	$47.40	$0.00	$47.40
Totals			$98.22	$366.11	$464.33
B-20 - Remove Pipelines					
Foreman		1	$0.00	$93.43	$93.43
Skilled Laborer		1	$0.00	$50.72	$50.72
General Laborer		1	$0.00	$50.10	$50.10
Light Truck - 1.5 Ton		1	$47.40	$0.00	$47.40
Totals			$47.40	$194.25	$241.65
B-22A - HDEP Installation - Pipe or Liner					
Skilled Laborer		1	$0.00	$50.72	$50.72
General Laborer		2	$0.00	$100.20	$100.20
D7R		1	$168.88	$71.22	$240.10
Light Truck - 1.5 Ton		1	$47.40	$0.00	$47.40
420D 4WD Backhoe		1	$50.82	$72.28	$123.10
Generator 5KW		1	$14.69	$0.00	$14.69
HDEP Welder (pipe or liner)		1	$44.36	$0.00	$44.36
Totals			$326.15	$294.42	$620.57
B-80A - Install Barbed Wire Fence					
General Laborer		3	$0.00	$150.30	$150.30
Light Truck - 1.5 Ton		1	$47.40	$0.00	$47.40
Totals			$47.40	$150.30	$197.70

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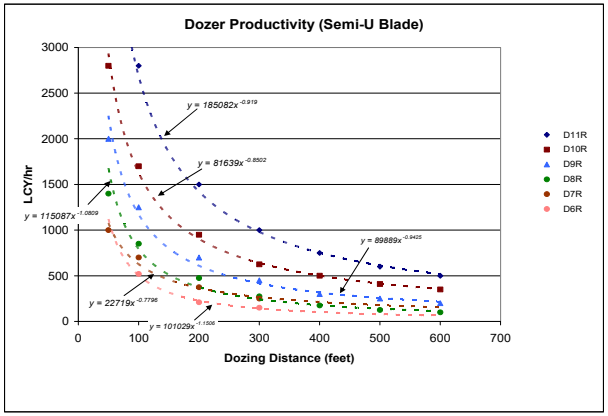
B-80C - Install Chain Link Fence (Flatbed truck has small crane)					
General Laborer		3	$0.00	$150.30	$150.30
Light Truck - 1.5 Ton		1	$47.40	$0.00	$47.40
Totals			$47.40	$150.30	$197.70
C-14B - Elevated Concrete Slabs (Reinforced Concrete Shaft Covers)					
Foreman		1	$0.00	$93.43	$93.43
Supervisor's Truck		1	$25.88	$0.00	$25.88
Carpenter		16	$0.00	$959.20	$959.20
General Laborer		2	$0.00	$100.20	$100.20
Rodmen (reinforcing concrete)		4	$0.00	$200.40	$200.40
Cement finisher		2	$0.00	$100.82	$100.82
Gas Engine Vibrator		1	$6.82	$70.49	$77.31
Concrete Pump		1	$127.18	$0.00	$127.18
Totals			$159.88	$1,524.54	$1,684.42
C-14D - Concrete Walls Formed in Place (Reinforced Concrete Adit Bulkheads)					
Foreman		1	$0.00	$93.43	$93.43
Supervisor's Truck		1	$25.88	$0.00	$25.88
Carpenter		18	$0.00	$1,079.10	$1,079.10
General Laborer		2	$0.00	$100.20	$100.20
Rodmen (reinforcing concrete)		2	$0.00	$100.20	$100.20
Cement finisher		1	$0.00	$50.41	$50.41
Gas Engine Vibrator		1	$6.82	$70.49	$77.31
Concrete Pump		1	$127.18	$0.00	$127.18
Totals			$159.88	$1,493.83	$1,653.71

Productivity - Bulldozers

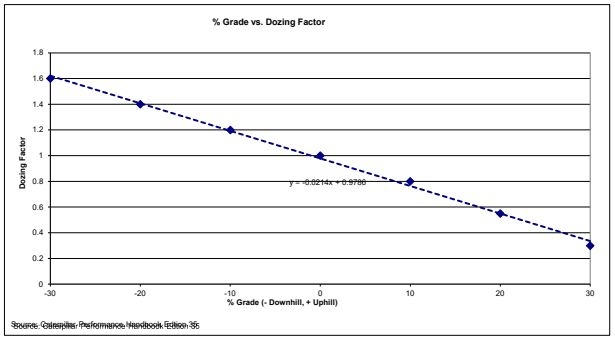
Dozer Specifications						
Description	**D11R**	**D10R**	**D9R**	**D8R**	**D7R**	**D6R**
Blade Width (SU) (ft)	18.33	15.92	14.17	12.92	12.08	10.67
Shank Guage (3 shanks) (ft)	9.83	8.67	7.67	7.08	6.5	6.5
Pocket Spacing (ft)	4.75	4.33	3.87	3.58	3.25	3.25
Ripping Width (Ripper + 1 Pocket) (ft)	14.58	13	11.54	10.66	9.75	9.75
Ripping Speed (mph)	1	1	1	1	1	1
Ripping Maneuver (turn) Time (min)	0.25	0.25	0.25	0.25	0.25	0.25
Altitude Deration Factor	1	1	1	1	1	1
Ripping Hourly Production (excluding maneuvering time) (ft)	5,280	5,280	5,280	5,280	5,280	5,280
Source: Caterpillar Performance Handbook Edition 35						

Dozer Productivity vs. Grading Distance						
Average Dozing Distance (feet)	**Production (LCY/hr)**					
	D11R	**D10R**	**D9R**	**D8R**	**D7R**	**D6R**
50	4,800	2,800	2,000	1,400	1,000	
100	2,800	1,700	1,250	850	700	520
200	1,500	950	700	475	375	210
300	1,000	625	450	275	250	150
400	750	500	300	175		
500	600	410	250	125		
600	500	350	200	100		
Source: Caterpillar Performance Handbook Edition 35						
dozer productivity = k x Dozing Distance^{p} (see graph)						
k =	185082	81639	89889	115087	22719	101029
p =	-0.919	-0.8502	-0.9425	-1.0809	-0.7796	-1.1506



Productivity - Bulldozers (cont.)

% Grade vs. Dozing Factor	
% Grade	**Dozing Factor**
-30	1.6
-20	1.4
-10	1.2
0	1
10	0.8
20	0.55
30	0.3
Source: Caterpillar Performance Handbook Edition 35	
% Grade Dozing Factor = -0.0214x + 0.9786 (see graph)	



Job Condition Correction Factors - Bulldozers	
OPERATOR	
Average	0.75
MATERIAL (1)	
Loose stockpile	1.2
Normal	1
Hard to cut; frozen — with tilt cylinder	0.8
Hard to drift; "dead" (dry,non-cohesive material) or very sticky material	0.8
Rock, ripped or blasted	0.6
SLOT DOZING OR SIDE BY SIDE (1)	1.2
VISIBILITY	
Good conditions	1
JOB EFFICIENCY	
50 min/hr	0.83
(1) Selected in facility worksheets. Other factors included as standard factors. Source: Caterpillar Performance Handbook Edition 35	

Material Densities(1)		
Material	**lb/cy**	**kg/m^3**
Alluvium	2,900	1,720
Basalt	3,300	1,960
Clay - Dry	2,500	1,480
Granite - broken	2,800	1,660
Gravel	2,550	1,510
LS - broken	2,600	1,540
LS - crushed	2,600	1,540
Sandstone	2,550	1,510
Shale	2,100	1,250
Stone - crushed	2,700	1,600
Tailings - Coarse (dry, loose sand)	2,400	1,420
Tailings - Slimes (loose sand & clay)	2,700	1,600
Topsoil	1,600	950
(1) Source: Caterpillar Performance Handbook Edition 35		

Note: uses Sand & Gravel - Dry from Caterpillar Handbook

Productivity - Scrapers

Scraper Specifications		
Description	**631G**	**637G**
Empty Weight	100,600	112,760
Payload Capacity (cy)		
Struck	24	24
Heaped	34	34
Average	29	29
Loaded by	One D10R	Self*
Load Time (min)	1	1
Maneuver and Spread (min)	1	1
Job Efficiency	1	1
Rolling Resistance**	3	3
Altitude Deration Factor	1	1

* Requires pair

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials			Downhill Scraper Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)											
			631G						637G PP					
Material	**lb/cy**	**Scraper Load lb**	**Loaded Weight (lbs)**	**22**	**16**	**10**	**5**	**1**	**Loaded Weight (lbs)**	**25**	**15**	**10**	**5**	**1**
Alluvium	2,900	84,100	184,700	7.5	10	13	33	33	196,860	7	10	18.5	34	34
Basalt	3,300	95,700	196,300	7.5	10	13	24.5	33	208,460	7	10	18.5	25	34
Clay - Dry	2,500	72,500	173,100	7.5	10	13	33	33	185,260	7	10	18.5	34	34
Granite - broken	2,800	81,200	181,800	7.5	10	13	33	33	193,960	7	10	18.5	34	34
Gravel	2,550	73,950	174,550	7.5	10	13	33	33	186,710	7	10	18.5	34	34
LS - broken	2,600	75,400	176,000	7.5	10	13	33	33	188,160	7	10	18.5	34	34
LS - crushed	2,600	75,400	176,000	7.5	10	13	33	33	188,160	7	10	18.5	34	34
Sandstone	2,550	73,950	174,550	7.5	10	13	33	33	186,710	7	10	18.5	34	34
Shale	2,100	60,900	161,500	7.5	10	18	33	33	173,660	10	13.5	18.5	34	34
Stone - crushed	2,700	78,300	178,900	7.5	10	13	33	33	191,060	7	10	18.5	34	34
Tailings - Coarse (dry, loose sand)	2,400	69,600	170,200	7.5	10	13	33	33	182,360	7	10	18.5	34	34
Tailings - Slimes (loose sand & clay)	2,700	78,300	178,900	7.5	10	13	33	33	191,060	7	10	18.5	34	34
Topsoil	1,600	46,400	147,000	7.5	10	18	33	33	159,160	10	13.5	18.5	34	34
			Empty	10	18	24.5	33	33	Empty	10	13.5	18.5	34	34

Source: Caterpillar Performance Handbook Edition 34

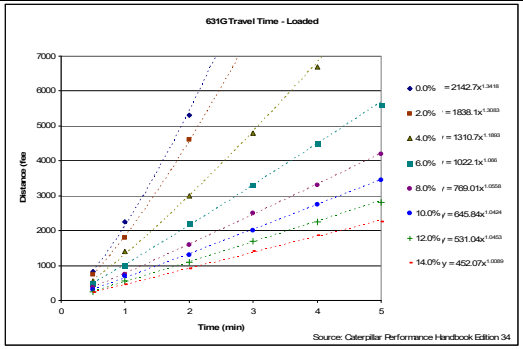
Productivity - Scrapers (cont.)

631G Scraper Travel Time - Uphill Loaded

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	825	2,250	5,300				2142.7	1.3418
2	750	1,800	4,600				1838.1	1.3083
4	550	1,400	3,000	4,800	6,700		1310.7	1.1893
6	490	1,000	2,200	3,300	4,500	5,600	1022.1	1.066
8	375	750	1,600	2,500	3,300	4,200	769.01	1.0558
10	300	700	1,300	2,000	2,750	3,450	645.84	1.0424
12	250	550	1,100	1,700	2,250	2,800	531.04	1.0453
14	225	450	900	1,400	1,850	2,250	452.07	1.0089

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



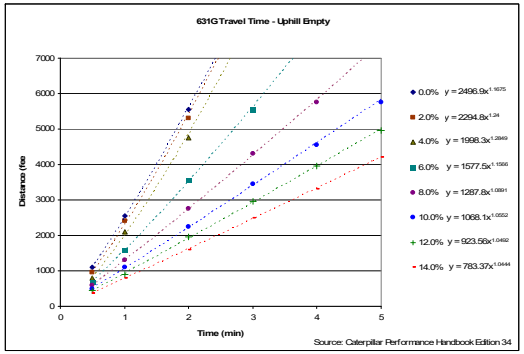
Source: Caterpillar Performance Handbook Edition 34

631G Scraper Travel Time - Uphill Empty

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,100	2,550	5,550				2496.9	1.1675
2	950	2,400	5,300				2294.8	1.24
4	800	2,100	4,750				1998.3	1.2849
6	700	1,600	3,550	5,550			1557.5	1.1566
8	600	1,300	2,750	4,300	5,750		1287.8	1.0891
10	500	1,100	2,250	3,450	4,550	5,750	1068.1	1.0552
12	450	900	1,950	2,950	3,950	4,950	923.56	1.0492
14	375	800	1,600	2,500	3,300	4,200	783.37	1.0444

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



Source: Caterpillar Performance Handbook Edition 34

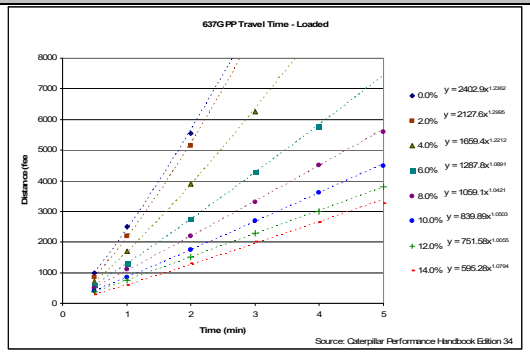
Productivity - Scrapers (cont.)

637G Push-Pull Scraper Travel Time - Uphill Loaded

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,000	2,500	5,550				2402.9	1.2362
2	850	2,200	5,150				2127.6	1.2995
4	700	1,700	3,900	6,250			1659.4	1.2212
6	600	1,300	2,750	4,300	5,750		1287.8	1.0891
8	500	1,100	2,200	3,300	4,500	5,600	1059.1	1.0421
10	400	850	1,750	2,700	3,600	4,475	839.89	1.0503
12	375	750	1,500	2,300	3,000	3,800	751.58	1.0055
14	275	600	1,300	2,000	2,650	3,250	595.28	1.0794

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



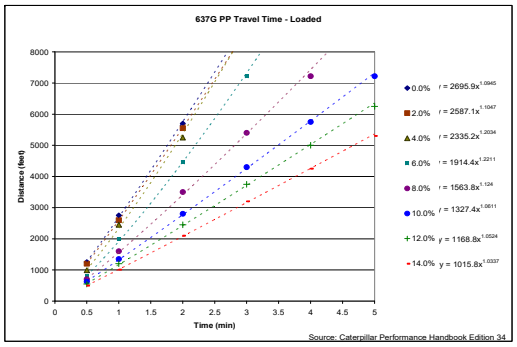
Source: Caterpillar Performance Handbook Edition 34

637G Push-Pull Scraper Travel Time - Uphill Empty

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,250	2,750	5,700				2695.9	1.0945
2	1,200	2,600	5,550				2587.1	1.1047
4	990	2,450	5,250				2335.2	1.0234
6	800	2,000	4,450	7,216			1914.4	1.2211
8	700	1,600	3,500	5,400	7,216		1563.8	1.124
10	625	1,350	2,800	4,300	5,750	7,216	1327.4	1.0611
12	550	1,200	2,450	3,750	5,000	6,250	1168.8	1.0524
14	495	1,010	2,100	3,200	4,250	5,300	1015.8	1.0337

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



Source: Caterpillar Performance Handbook Edition 34

Productivity - Haul Trucks

Haul Truck Specifications

Description	769D	773E	777D	785C	793C	797B
Chassis Weight (lb)	53,506	70,330	113,160	170,000	259,500	473,600
Body Weight (lb)	17,350	20,300	34,785	36,788	70,785	104,200
Standard Liner Weight (lb)	7,000	8,600	12,040	16,846	24,418	8,800
Total Truck Weight (lb)	77,856	99,230	159,985	223,634	354,703	586,600
Payload Capacity (cy)						
Struck	21.6	34.8	55	78.5	126	228
Heaped	31.7	46	78.6	102	169	290
Average	26.65	40.4	66.8	90.25	147.5	259
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5
Altitude Deration Factor	1	1	1	1	1	1

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials

Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)

Material	lb/cy	Truck (769D) Load lb	Truck (773E) Load lb	Truck (777D) Load lb	769D Loaded Weight (lbs)	20	15	10	5	773E Loaded Weight (lbs)	20	15	10	5	777D Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	77,285	117,160	193,720	155,141	11	11	15	26	216,390	7	7	13	23	353,705	7	9	12	29
Basalt	3,300	87,945	133,320	220,440	165,801	11	11	11	20	232,550	7	7	13	23	380,425	7	7	12	21
Clay - Dry	2,500	66,625	101,000	167,000	144,481	11	11	15	26	200,230	7	9	13	23	326,985	7	9	16	29
Granite - broken	2,800	74,620	113,120	187,040	152,476	11	11	15	26	212,350	7	7	13	23	347,025	7	9	12	29
Gravel	2,550	67,958	103,020	170,340	145,814	11	11	15	26	202,250	7	9	13	23	330,325	7	9	16	29
LS - broken	2,600	69,290	105,040	173,680	147,146	11	11	15	26	204,270	7	9	13	23	333,665	7	9	12	29
LS - crushed	2,600	69,290	105,040	173,680	147,146	11	11	15	26	204,270	7	9	13	23	333,665	7	9	12	29
Sandstone	2,550	67,958	103,020	170,340	145,814	11	11	15	26	202,250	7	9	13	23	330,325	7	9	16	29
Shale	2,100	55,965	84,840	140,280	133,821	11	11	15	26	184,070	7	9	13	31	300,265	7	9	16	29
Stone - crushed	2,700	71,955	109,080	180,360	149,811	11	11	15	26	208,310	7	7	13	23	340,345	7	9	12	29
Tailings - Coarse (dry, loose sand)	2,400	63,960	96,960	160,320	141,816	11	11	15	26	196,190	7	9	13	23	320,305	7	9	16	29
Tailings - Slimes (loose sand & clay)	2,700	71,955	109,080	180,360	149,811	11	11	15	26	208,310	7	7	13	23	340,345	7	9	12	29
Topsoil	1,600	42,640	64,640	106,880	120,496	11	11	15	26	163,870	7	9	17	31	266,865	9	12	16	29
					Empty	15	15	26	36	Empty	13	17	23	42	Empty	16	16	29	39

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials

Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)

Material	lb/cy	Truck (785C) Load lb	Truck (793C) Load lb	Truck (797B) Load lb	785C Loaded Weight (lbs)	20	15	10	5	793C Loaded Weight (lbs)	20	15	10	5	797B Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	261,725	427,750	751,100	485,359	8	8	14	27	782,453	7	7	10	17	1,337,700	7	7	9	17
Basalt	3,300	297,825	486,750	854,700	521,459	8	8	14	27	841,453	7	7	10	17	1,441,300	7	7	9	17
Clay - Dry	2,500	225,625	368,750	647,500	449,259	8	11	14	36	723,453	7	7	10	25	1,234,100	7	7	9	23
Granite - broken	2,800	252,700	413,000	725,200	476,334	8	8	14	27	767,703	7	7	10	17	1,311,800	7	7	9	17
Gravel	2,550	230,138	376,125	660,450	453,772	8	8	14	36	730,828	7	7	10	25	1,247,050	7	7	9	23
LS - broken	2,600	234,650	383,500	673,400	458,284	8	8	14	27	738,203	7	7	10	25	1,260,000	7	7	9	23
LS - crushed	2,600	234,650	383,500	673,400	458,284	8	8	14	27	738,203	7	7	10	25	1,260,000	7	7	9	23
Sandstone	2,550	230,138	376,125	660,450	453,772	8	8	14	36	730,828	7	7	10	25	1,247,050	7	7	9	23
Shale	2,100	189,525	309,750	543,900	413,159	8	11	14	36	664,453	7	7	10	25	1,130,500	7	7	13	23
Stone - crushed	2,700	243,675	398,250	699,300	467,309	8	8	14	27	752,953	7	7	10	17	1,285,900	7	7	9	23
Tailings - Coarse (dry, loose sand)	2,400	216,600	354,000	621,600	440,234	8	11	14	36	708,703	7	7	10	25	1,208,200	7	7	9	23
Tailings - Slimes (loose sand & clay)	2,700	243,675	398,250	699,300	467,309	8	8	14	27	752,953	7	7	10	17	1,285,900	7	7	9	23
Topsoil	1,600	144,400	236,000	414,400	368,034	8	11	19	36	590,703	7	10	13	25	1,001,000	7	9	13	23
					Empty	14	19	36	36	Empty	10	13	17	33	Empty	13	17	23	42

Source: Caterpillar Performance Handbook Edition 35

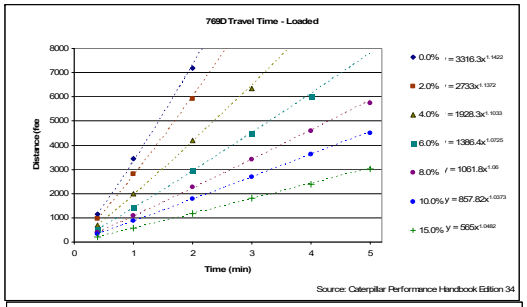
Productivity - Haul Trucks (cont.)

769D Haul Truck Travel Time - Uphill Loaded

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,148	3,428	7,183				3316.3	1.1422
4	689	1,984	4,198	6,330			1928.3	1.1033
6	508	1,427	2,952	4,510	6,002		1386.4	1.0725
8	394	1,082	2,263	3,411	4,592	5,740	1061.8	1.06
10	328	869	1,771	2,690	3,608	4,510	857.82	1.0373
15	213	574	1,181	1,804	2,394	3,018	565	1.0482

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



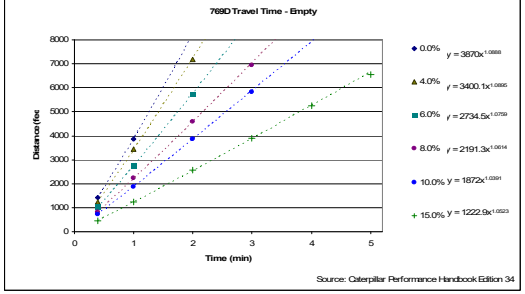
Source: Caterpillar Performance Handbook Edition 34

769D Haul Truck Travel Time - Uphill Empty

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,427	3,870					3870	1.0888
4	1,246	3,444	7,183				3400.1	1.0895
6	1,017	2,755	5,740				2734.5	1.0759
8	820	2,230	4,592	6,954			2191.3	1.0614
10	722	1,870	3,870	5,838			1872	1.0391
15	459	1,246	2,558	3,903	5,248	6,560	1222.9	1.0523

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



Source: Caterpillar Performance Handbook Edition 34

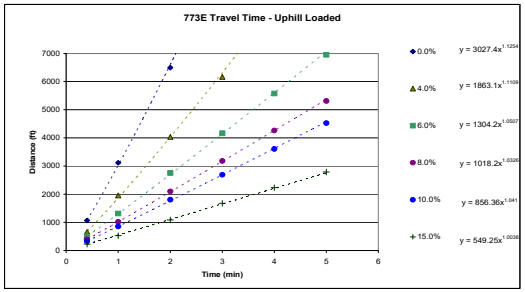
Productivity - Haul Trucks (cont.)

773E Haul Truck Travel Time - Uphill Loaded

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,066	3,117	6,496				3027.4	1.1254
4	656	1,952	4,035	6,168			1863.1	1.1109
6	492	1,312	2,756	4,167	5,577	6,955	1304.2	1.0507
8	394	1,017	2,100	3,182	4,265	5,315	1018.2	1.0326
10	328	853	1,804	2,690	3,609	4,528	856.36	1.041
15	226	525	1,083	1,673	2,231	2,789	549.25	1.0038

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35

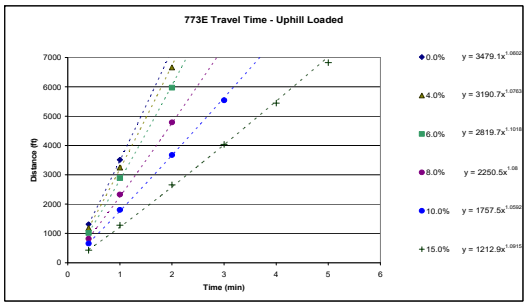


773E Haul Truck Travel Time - Uphill Empty

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,312	3,510	7,218				3479.1	1.0602
4	1,181	3,248	6,660				3190.7	1.0763
6	1,017	2,887	5,971				2819.7	1.1018
8	820	2,329	4,790	7,218			2250.5	1.08
10	656	1,804	3,675	5,545			1757.5	1.0592
15	427	1,280	2,657	4,035	5,446	6,824	1212.9	1.0915

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35

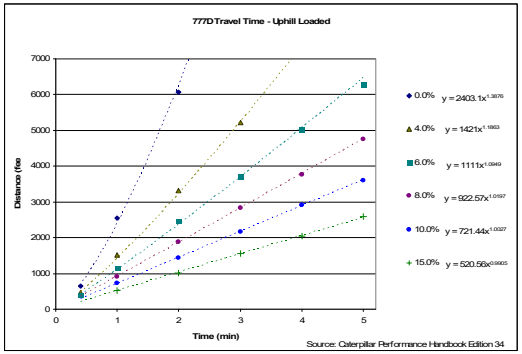


Productivity - Haul Trucks (cont.)

777D Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)							
	0.4	1	2	3	4	5	k	p
0	656	2,558	6,068				2403.1	1.3876
4	459	1,509	3,313	5,215	7,085		1412	1.1863
6	394	1,148	2,460	3,706	5,018	6,298	1111	1.0949
8		918	1,886	2,837	3,772	4,756	922.57	1.0197
10		722	1,443	2,165	2,919	3,608	721.44	1.0027
15		525	1,017	1,558	2,034	2,591	520.56	0.9905

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

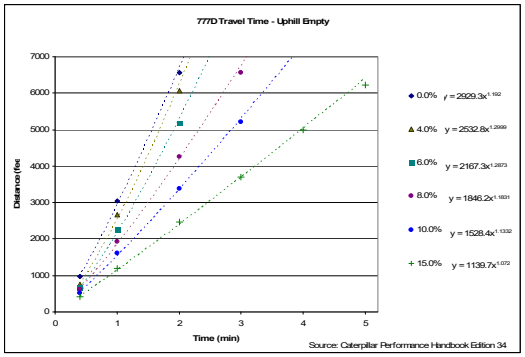
Source: Caterpillar Performance Handbook Edition 35



777D Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)							
	0.4	1	2	3	4	5	k	p
0	968	3,034	6,560				2929.3	1.192
4	754	2,657	6,068				2532.8	1.2999
6	656	2,247	5,182				2167.3	1.2873
8	607	1,935	4,248	6,560			1846.2	1.1831
10	525	1,607	3,378	5,215	7,282		1528.4	1.1332
15	410	1,197	2,460	3,706	4,986	6,232	1139.7	1.072

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



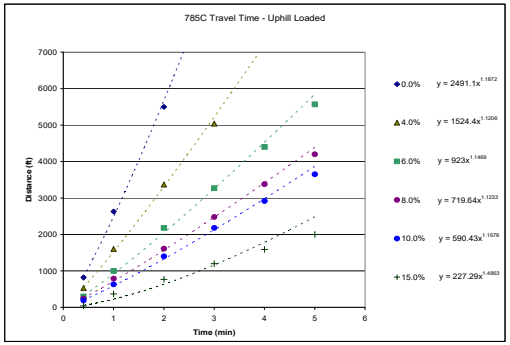
Productivity - Haul Trucks (cont.)

785C Haul Truck Travel Time - Uphill Loaded

Total Resistance (%) (rolling + grade)	Time (min) 0.4	1	2	3	4	5	k	p
0	820	2,630	5,500				2491.1	1.1872
4	530	1,600	3,370	5,040			1524.4	1.1206
6	300	1,000	2,180	3,270	4,400	5,570	923	1.1469
8	240	790	1,610	2,480	3,380	4,200	719.64	1.1233
10	190	630	1,400	2,180	2,920	3,650	590.43	1.1678
15	40	370	770	1,200	1,590	2,000	227.29	1.4863

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35

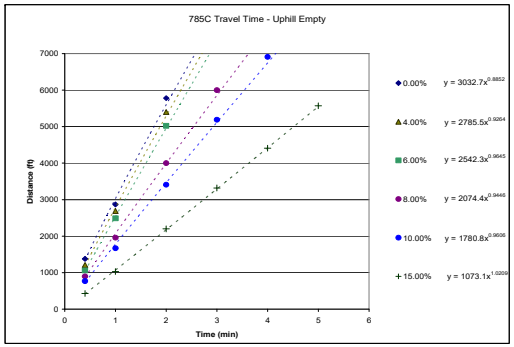


785C Haul Truck Travel Time - Uphill Empty

Total Resistance (%) (rolling + grade)	Time (min) 0.4	1	2	3	4	5	k	p
0	1,380	2,870	5,780				3032.7	0.8852
4	1,210	2,690	5,400				2785.5	0.9264
6	1,060	2,490	5,020				2542.3	0.9645
8	900	1,960	4,000	6,000			2074.4	0.9446
10	770	1,670	3,410	5,190	6,910		1780.8	0.9606
15	430	1,030	2,200	3,320	4,410	5,570	1073.1	1.0209

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



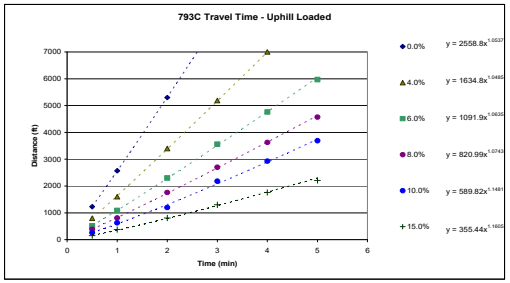
Productivity - Haul Trucks (cont.)

793C Haul Truck Travel Time - Uphill Loaded

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,230	2,570	5,300				2558.8	1.0537
4	800	1,600	3,400	5,190	7,000		1634.8	1.0485
6	520	1,090	2,300	3,560	4,760	5,970	1091.9	1.0635
8	390	810	1,760	2,700	3,630	4,570	820.99	1.0743
10	260	630	1,200	2,180	2,930	3,690	589.82	1.1481
15	150	380	810	1,300	1,760	2,210	355.44	1.1605

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35

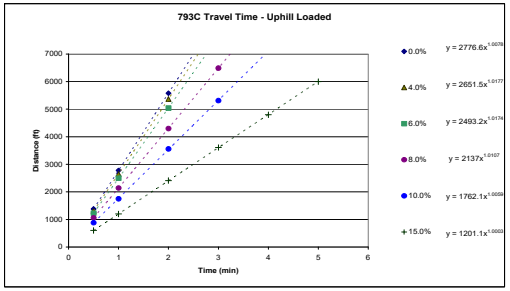


793C Haul Truck Travel Time - Uphill Empty

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,380	2,780	5,580				2776.6	1.0078
4	1,310	2,650	5,370				2651.5	1.0177
6	1,230	2,500	5,040				2493.2	1.0174
8	1,060	2,140	4,300	6,490			2137	1.0107
10	880	1,750	3,560	5,310			1762.1	1.0059
15	600	1,200	2,410	3,610	4,800	6,000	1201.1	1.0003

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35

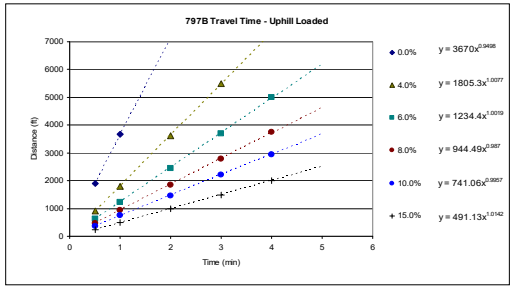


Productivity - Haul Trucks (cont.)

797B Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)							
	0.5	1	2	3	4	5	k	p
0	1,900	3,670					3670	0.9498
4	900	1,800	3,620	5,480			1805.3	1.0077
6	620	1,230	2,450	3,700	5,000		1234.4	1.0019
8	480	940	1,850	2,790	3,750		944.49	0.987
10	370	750	1,460	2,220	2,950		741.06	0.9957
15	240	500	1,000	1,480	2,000		491.13	1.0142

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

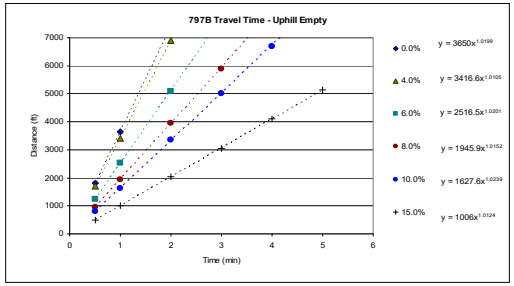
Source: Caterpillar Performance Handbook Edition 35



797B Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)							
	0.5	1	2	3	4	5	k	p
0	1,800	3,650					3650	1.0199
4	1,700	3,400	6,900				3416.6	1.0105
6	1,240	2,520	5,100				2516.5	1.0201
8	960	1,950	3,960	5,900			1945.9	1.0152
10	800	1,620	3,350	5,000	6,700		1627.6	1.0239
15	500	1,000	2,040	3,050	4,100	5,130	1006	1.0124

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



Productivity - Articulated Trucks

Articulated Truck Specifications

Description	725	730	735	740
Chassis Weight (lb)				
Body Weight (lb)				
Standard Liner Weight (lb)				
Operating Weight (Empty) (lb)	50,120	51,220	65,830	72,070
Payload Capacity (cy)				
Struck	14.5	17.1	19.3	23.3
Heaped	18.8	22.1	31.8	30.2
Average	16.65	19.6	25.55	26.75
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5
Altitude Deration Factor	1	1	1	1

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)									
				725					730				
Material	lb/cy	Truck (725) Load lb	Truck (730) Load lb	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	48,285	56,840	98,405	9	9	13	30	108,060	5	8	13	29
Basalt	3,300	54,945	64,680	105,065	5	9	13	22	115,900	5	8	13	29
Clay - Dry	2,500	41,625	49,000	91,745	9	13	13	30	100,220	8	8	13	29
Granite - broken	2,800	46,620	54,880	96,740	9	13	13	30	106,100	5	8	13	29
Gravel	2,550	42,458	49,980	92,578	9	13	13	30	101,200	8	8	13	29
LS - broken	2,600	43,290	50,960	93,410	9	13	13	30	102,180	8	8	13	29
LS - crushed	2,600	43,290	50,960	93,410	9	13	13	30	102,180	8	8	13	29
Sandstone	2,550	42,458	49,980	92,578	9	13	13	30	101,200	8	8	13	29
Shale	2,100	34,965	41,160	85,085	9	13	22	30	92,380	8	13	13	29
Stone - crushed	2,700	44,955	52,920	95,075	9	13	13	30	104,140	8	8	13	29
Tailings - Coarse (dry, loose sand)	2,400	39,960	47,040	90,080	9	13	13	30	98,260	8	8	13	29
Tailings - Slimes (loose sand & clay)	2,700	44,955	52,920	95,075	9	13	13	30	104,140	8	8	13	29
Topsoil	1,600	26,640	31,360	76,760	9	13	22	30	82,580	8	13	22	35
				Empty	13	13	22	30	Empty	13	13	22	35

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)									
				735					740				
Material	lb/cy	Truck (735) Load lb	Truck (740) Load lb	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	74,095	77,575	139,925	7	9	13	27	149,645	7	9	17	23
Basalt	3,300	84,315	88,275	150,145	7	9	13	27	160,345	7	9	13	23
Clay - Dry	2,500	63,875	66,875	129,705	7	9	13	27	138,945	9	13	17	31
Granite - broken	2,800	71,540	74,900	137,370	7	9	13	27	146,970	7	9	17	23
Gravel	2,550	65,153	68,213	130,983	7	9	13	27	140,283	7	9	17	31
LS - broken	2,600	66,430	69,550	132,260	7	9	13	27	141,620	7	9	17	31
LS - crushed	2,600	66,430	69,550	132,260	7	9	13	27	141,620	7	9	17	31
Sandstone	2,550	65,153	68,213	130,983	7	9	13	27	140,283	7	9	17	31
Shale	2,100	53,655	56,175	119,485	9	9	18	27	128,245	7	13	17	31
Stone - crushed	2,700	68,985	72,225	134,815	7	9	13	27	144,295	7	9	17	23
Tailings - Coarse (dry, loose sand)	2,400	61,320	64,200	127,150	7	9	13	27	136,270	9	13	17	31
Tailings - Slimes (loose sand & clay)	2,700	68,985	72,225	134,815	7	9	13	27	144,295	7	9	17	23
Topsoil	1,600	40,880	42,800	106,710	9	13	18	36	114,870	9	13	17	31
				Empty	13	18	27	42	Empty	17	17	23	31

Source: Caterpillar Performance Handbook Edition 35

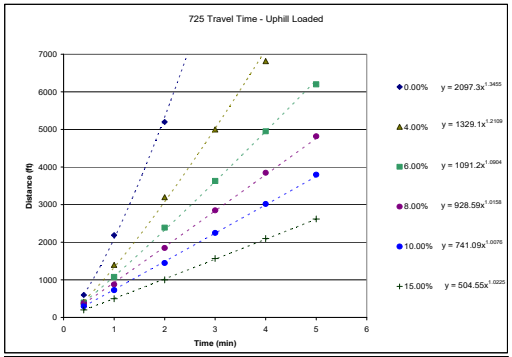
Productivity - Articulated Trucks (cont.)

725 Articulated Truck Travel Time - Uphill Loaded

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	600	2,190	5,200				2097.3	1.3455
4	420	1,400	3,200	5,000	6,820		1329.1	1.2109
6	400	1,080	2,390	3,630	4,950	6,200	1091.2	1.0904
8	380	880	1,850	2,850	3,850	4,820	928.59	1.0158
10	300	729	1,450	2,250	3,020	3,800	741.09	1.0076
15	200	500	1,000	1,570	2,100	2,620	504.55	1.0225

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35

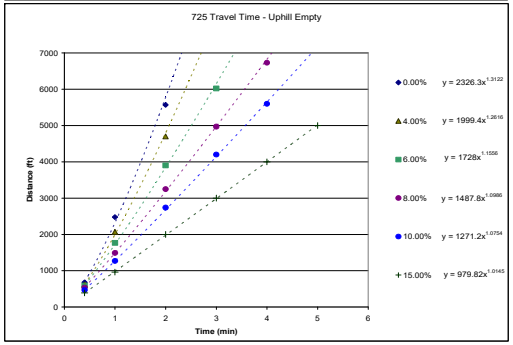


725 Haul Truck Travel Time - Uphill Empty

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	680	2,480	5,570				2326.3	1.3122
4	620	2,070	4,700				1999.4	1.2616
6	590	1,770	3,900	6,020			1728	1.1556
8	540	1,490	3,250	4,970	6,730		1487.8	1.0986
10	470	1,270	2,740	4,200	5,600	7,050	1271.2	1.0754
15	390	960	2,000	3,000	4,000	5,000	979.82	1.0145

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35

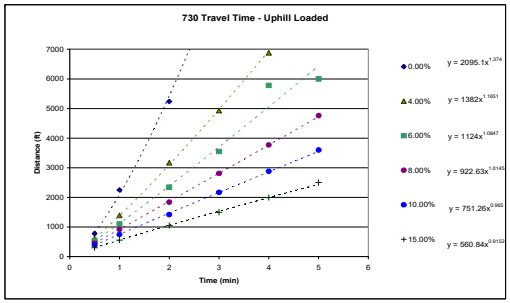


Productivity - Articulated Trucks (cont.)

730 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	780	2,250	5,240				2095	1.374
4	610	1,390	3,170	4,930	6,880		1382	1.1651
6	540	1,100	2,340	3,550	5,780	6,000	112	1.0847
8	460	920	1,840	2,810	3,770	4,760	922.63	1.0145
10	390	750	1,420	2,170	2,880	3,600	751.26	0.965
15	300	560	1,050	1,500	1,995	2,500	560.84	0.9152

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

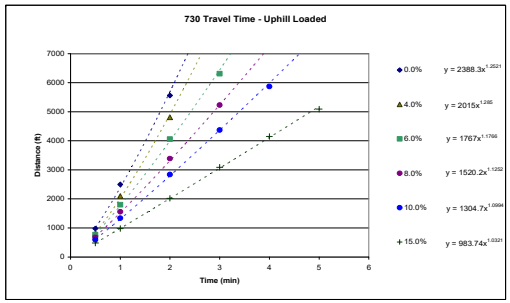
Source: Caterpillar Performance Handbook Edition 35



730 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	980	2,500	5,560				2388	1.25621
4	810	2,100	4,810				2015	1.285
6	770	1,800	4,060	6,310			1767	1.1766
8	680	1,560	3,390	5,230	7,070		1520.2	1.1252
10	595	1,340	2,840	4,370	5,870		1304.7	1.0994
15	480	980	2,020	3,090	4,150	5,090	983.74	1.0321

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



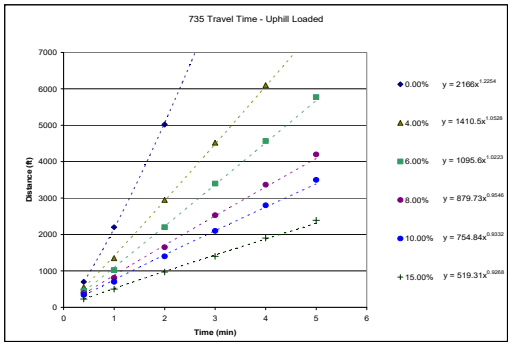
Productivity - Articulated Trucks (cont.)

735 Articulated Truck Travel Time - Uphill Loaded

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	700	2,200	5,020				2166	1.2254
4	550	1,350	2,950	4,520	6,100		1410.5	1.0528
6	450	1,020	2,200	3,400	4,570	5,770	1095.6	1.0223
8	390	810	1,650	2,530	3,370	4,200	879.73	0.9546
10	340	700	1,400	2,100	2,800	3,500	754.84	0.9332
15	230	500	970	1,400	1,900	2,390	519.31	0.9268

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35

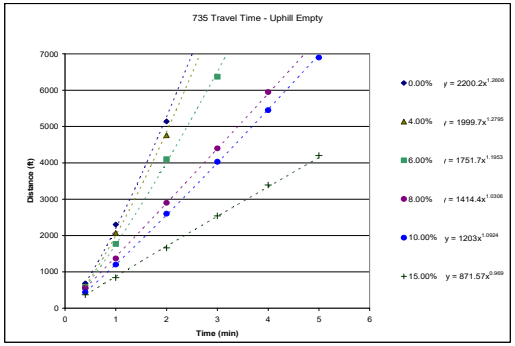


735 Haul Truck Travel Time - Uphill Empty

Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	680	2,300	5,140				2200.2	1.2606
4	610	2,070	4,760				1999.7	1.2795
6	580	1,770	4,100	6,370			1751.7	1.1953
8	560	1,370	2,900	4,400	5,950		1414.4	1.0306
10	440	1,200	2,600	4,030	5,450	6,900	1203	1.0924
15	370	840	1,660	2,540	3,390	4,200	871.57	0.969

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



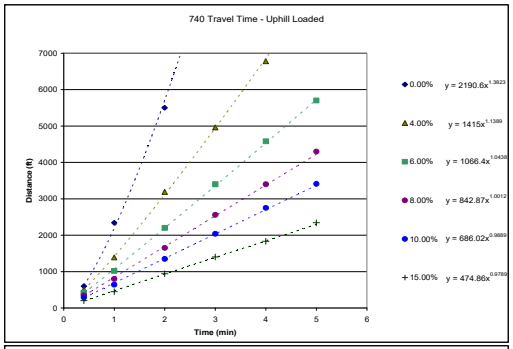
Productivity - Articulated Trucks (cont.)

740 Articulated Truck Travel Time - Uphill Loaded

Total Resistance (%) (rolling + grade)	Time (min) 0.5	1	2	3	4	5	k	p
0	600	2,340	5,500				2190.6	1.3823
4	500	1,390	3,190	4,960	6,780		1415	1.1389
6	420	1,020	2,200	3,400	4,580	5,700	1066.4	1.0438
8	350	800	1,650	2,560	3,400	4,300	842.87	1.0012
10	290	640	1,350	2,040	2,750	3,410	686.02	0.9889
15	200	450	940	1,400	1,830	2,340	474.86	0.9789

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35

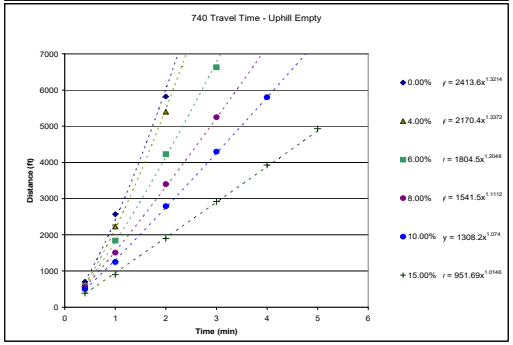


740 Haul Truck Travel Time - Uphill Empty

Total Resistance (%) (rolling + grade)	Time (min) 0.5	1	2	3	4	5	k	p
0	700	2,570	5,820				2413.6	1.3214
4	630	2,230	5,400				2170.4	1.3372
6	590	1,840	4,230	6,630			1804.5	1.2048
8	560	1,510	3,400	5,250	7,120		1541.5	1.1112
10	500	1,250	2,790	4,300	5,800		1308.2	1.074
15	390	900	1,900	2,920	3,930	4,930	951.69	1.0146

Travel Time (min) = $\sqrt[p]{\frac{\text{distance}}{k}}$

Source: Caterpillar Performance Handbook Edition 35



Productivity - Wheel Loaders

Wheel Loader Specifications

Description	924G	928G	950G	966G	972G	972G (2)	980G	988G	988G(2)	990	992G	992G(2)	994D	L2350
Payload Capacity (cy)														
Struck	2.2	2.5	3.46	4.46	4.71	4.71	6.34	6.9	6.9	9.5	13.2	13.2	18	
Heaped	2.7	3.25	4	5.25	5.5	5.5	7.25	8.33	8.33	11.25	16	16	22.5	
Average	2.45	2.875	3.73	4.855	5.105	5.105	6.795	7.615	7.615	10.375	14.6	14.6	20.25	53
Matched Truck	N/A	N/A	N/A	725	730	735	N/A	740	769D	773D	777D	785C	793C	797B
Average Cycle Time (min)	0.45	0.45	0.5	0.5	0.5	0.5	0.55	0.55	0.55	0.55	0.6	0.6	0.6	0.75
Passes to Fill Truck	N/A	N/A	N/A	3	4	5	N/A	4	3	4	5	6	7	5
Altitude Deration Factor	1	1	1	1	0.92	0.92	1	1	1	1	1	1	1	1
Operator Efficiency	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	N/A	N/A	N/A	1.5	1.84	2.3	N/A	2.2	1.65	2.2	3	3.6	4.2	3.75
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

Loader matched to small truck fleet
Loader matched to medium truck fleet
Loader matched to large truck fleet
Loader matched to extra large truck fleet

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered
992G (2) - can be used to load 785 with 6 passes

Source: Caterpillar Performance Handbook Edition 35; LeTourneau/actual Chilean mine operating data for L2350.

Wheeled Loaders	General Purpose	Spade Nose-Rock
928G	3.25 cubic yard	not available
966G	5.0 cubic yard	not available
972G	5.5 cubic yard	not available
988G	not available	8.3 cubic yard
992G	not available	16.0 cubic yard

note: capacities are 2:1 heaped, SAE standards
NOTES: Buckets for both Track Excavators and Wheel Loaders are offered by CECo & available for the rental rates quoted. Bucket sizes and capacities obtained from CATERPILLAR PERFORMANCE HANDBOOK, ED 34; Section 12, Wheel Loader and Section 4, Excavators

Bucket capacity and width dictated by material weight and configuration, ie., shot, loose, light bank, stockpile, rock, etc. Typical Nevada applications were used to determine above bucket capacities as related to materials & densities. Job site specifics may alter specific bucket requirements. (Cashman Equipment, Elko, Nevada - February 21, 2005)

Productivity - Shovels

Shovel Specifications (Komatsu equivalent)

Description	PC2000	PC3000	PC4000	PC5500	PC8000
Payload Capacity (cy)					
Struck	10.46	18.84	26.16	33.48	47.09
Heaped	14.39	25.9	35.97	46.04	64.75
Average	12.43	22.37	31.07	39.76	55.92
Matched Truck	740	777D	785C	793C	797B
Average Cycle Time (min)	0.49	0.49	0.59	0.59	0.69
Passes to Fill Truck	2.05	2.84	3.38	4.69	5.11
Altitude Deration Factor	1	1	0.9	1	1
Operator Efficiency	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	1.68	2.33	3.32	4.61	5.86
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5

Shovel matched to small truck fleet
Shovel matched to medium truck fleet
Shovel matched to large truck fleet
Shovel matched to extra large truck fleet

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered
992G (2) - can be used to load 785 with 6 passes

Source: Caterpillar Performance Handbook Edition 35; Komatsu actual Peruvian mine (Lagunas Norte) operating data for PC4000.

Productivity - Motor Graders

Motor Grader Specifications

Description	120H	14G/H	16G/H	24M
Grader Width (ft)	8	9.25	10.08	14.04
Blade Width (ft)	12	14	16	16
Ripper Width (7 shanks) (ft)	7.6	8.5	9.75	12.83
Road Maintence Speed (mph)				
Minimum	3	3	3	3
Maximum	9.5	9.5	9.5	9.5
Average	6.25	6.25	6.25	6.25
Hourly Production	33,000	33,000	33,000	33,000
Ripping Speed (mph)	1	1	1	1
Minimum	0	0	0	0
Maximum	3	3	3	3
Average	1.5	1.5	1.5	1.5
Altitude Deration Factor	1	1	1	1
Hourly Production (with job efficiency correction & altitude deration factors) (excluding manuever time)	6,574	6,574	6,574	6,574
Maneuver time per pass (min)	0.5	0.5	0.5	0.5
Operator Efficiency	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83

Source: Caterpillar Performance Handbook Edition 35

Productivity - Excavators

Track Excavator Specifications

Description	312C	320C	325C	330C	345B	365BL	385BL
Bucket Capacity (cy)	0.68	1.57	2.22	2.22	3	4.6	7.3
Fill Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Average Bucket Load (cy)	0.612	1.413	1.998	1.998	2.7	4.14	6.57
Soil Type	packed earth	hard clay	hard clay	hard clay	hard clay	hard clay	hard clay
Job Condition	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard
Cycle Times (minutes) - based on hard clay							
Load Bucket	0.07	0.09	0.09	0.09	0.13	0.1	0.19
Swing Loaded	0.06	0.06	0.06	0.07	0.07	0.09	0.06
Dump Bucket	0.03	0.03	0.04	0.04	0.02	0.04	0.03
Swing Empty	0.05	0.05	0.06	0.07	0.06	0.07	0.07
Total Cycle Time	0.21	0.23	0.25	0.27	0.28	0.3	0.35
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Operator Efficiency	1	1	1	1	1	1	1
Altitude Deration Factor	1	0.9	1	1	1	1	1
Corrected Productivity (LCY/hr)	145	275	398	369	480	687	935
Exploration Road Cycle Time(1) (min)	N/A	0.38	0.4	N/A	0.42	N/A	N/A
Exploration Road Corr Prod (LCY/hr)	N/A	167	249	N/A	320	N/A	N/A
Track Width (ft)	8.17	9.17	9.83	10.5	11.42	11.5	11.5
Ditch/Trench Excavation							
Bucket Capacity (cy)	0.42	0.58	0.88	0.89	2.09	3.27	2.75
Fill Factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Corrected Productivity (LCY/hr)	50	57	88	82	186	271	196

Source: Caterpillar Performance Handbook Edition 35

Track Excavators	Hvy Duty Rock	Extreme Service Exc (e.g. haulroad recontour)	Hvy Duty Trench
312C	30", 0.68 cubic yd	47", 0.94 cubic yd	22", .42 cubic yd
320C	30", 0.90 cubic yd	55.1", 1.57 cubic yd	23.6", .58 cubic yd
325C	36", 1.25 cubic yd	60", 2.22 cubic yd	30", .88 cubic yd
330C	36", 1.25 cubic yd	60", 2.22 cubic yd	30", .89 cubic yd
345B	43.2", 1.69 cubic yd	65", 3.0 cubic yd	48", 2.09 cubic yd
365BL	60", 3.25 cubic yd	82", 4.6 cubic yd	59", 3.27 cubic yd
385BL	85", 6.30 cubic yd.	96.0, 7.30 cubic yd	57", 2.75 cubic yd

Note: capacities are 2:1 heaped, SAE standards
NOTES: Buckets for both Track Excavators and Wheel Loaders are offered by CECo &

available for the rental rates quoted. Bucket sizes and capacities obtained from CATERPILLAR PERFORMANCE HANDBOOK, ED 34; Section 12, Wheel Loader and Section 4, Excavators
Bucket capacity and width dictated by material weight and configuration, ie., shot, loose, light bank, stockpile, rock, etc. Typical Nevada applications were used to determine above bucket capacities as related to materials & densities. Job site specifics may alter specific bucket requirements (Cashman Equipment, Elko, Nevada - February 21, 2005)

(1) Exploration cycle time assumes feathering/smoothing performed by excavator

Concrete Breaking Production

Track Excavator w/Hammer Specifications

Description	325C	345B	385BL
Hydraulic Hammer	H120D s	H160D s	H180D s
Material	reinforced concrete		
Min Shift Production (yd3/8hr)	160	300	350
Max Shift Production (yd3/8hr)	300	850	1,550
Avg Shift Production (8hr)	230	575	950
Job Efficiency	0.83	0.83	0.83
Altitude Deration Factor	1	1	1

Source: Caterpillar Performance Handbook Edition 35

Drill Hole Plugging Productivity

Drill Hole Plugging Productivity		
Description	**Drill Rig**	**Pump Rig**
Move-to-hole, set-up, tear-down[1]	2	2
Trip in tremmie pipe [1]	500	
Pulling casing (threaded, not cemented)	200	
Single-pass perforating (water wells)	Productivity(all p	Passes
4	60	4
6	60	4
8	50	4
12	45	6
18	40	9
24	28	12
Perforation setup,trip in/out,tear-down	2	
Perforation tool cost (wear cost)[3]	2.5	
Inert Material Placement (backfill)		
Grouting/Cement[4] (cy/hr)		5.33
Cuttings (see below) (cy/hr)		3.5

Sources:
1. Drillers daily logs from Newmont, Barrick, New West Gold, Agnico Eagle, Idaho General Mines Inc.
2. Drillers daily logs from Newmont, Barrick, Target Minerals
3. Drillers daily logs from Newmont
4. WDC Exploration, Dec 2005

Soumce: WDC Exploration, Dec 2005

Cuttings Placement Productivity		
Shift productivity (Means 02210-700-0120; Crew B11M)	28	cy / shift
Shift length	8	hours
Estimated Hourly Productivity	3.5	cy / hour

Altitude Deration Table

MODEL	Elevation 0-760 m (0-2500') CAT	User	760-1500 m (2500-5000') CAT	User	1500-2300 m (5000-7000') CAT	User	2300-3000 m (7500-10,000') CAT	User	3000-3800 m (10,000-12,000') CAT	User	3800-4600 m (12,500-15,000') CAT	User
Bulldozers												
D6R	100		100		100		100		92		84	
D6R w/ Winch	100		100		100		100		92		84	
D7R	100		100		100		100		100		96	
D8R	100		100		100		93		85		77	
D9R	100		100		100		93		85		77	
D10R	100		100		100		100		97		89	
D11R	100		100		100		93		85		77	
Wheeled Dozers												
824G	100		100		100		100		92		84	
834G	100		100		100		100		92		84	
844	100		100		100		100		100		96	
854G	100		100		100		93		85		77	
Graders												
120H	100		100		100		100		96		93	
14G/H	100		100		100		100		98		96	
16G/H	100		100		100		100		98		96	
24M	100		100		100		100		98		96	
Excavators												
312C	100		100		100		83		78		73	
320C	100		100		90		87		83		76	
325C	100		100		100		100		100		100	
330C	100		100		100		100		100		100	
345B	100		100		100		100		93		93	
365BL	100		100		100		86		86		86	
385BL	100		100		100		93		85		78	
Scrapers												
631G	100		100		100		100		97		90	
637G	100		100		100		95		87		80	
Loaders												
924G	100		100		100		100		97		89	
928G	100		100		100		100		92		85	
950G	100		100		100		100		100		100	
966G	100		100		100		100		96		88	
972G	100		100		92		84		77		70	
980G	100		100		100		100		96		88	
988G	100		100		100		95		85		75	
990	100		100		100		100		92		85	
992G	100		100		100		100		93		87	
994D	100		100		100		100		96		88	
L2350	100		100		100		100		96		90	
Shovels												
PC2000	100		100		100		100		96		90	
PC3000	100		100		100		100		96		90	
PC4000	100		100		100		100		96		90	
PC5500	100		100		100		100		96		90	
PC8000	100		100		100		100		96		90	
Other Equipment												
420D 4WD Backhoe	99		97		95		91		91		91	
428D 4WD Backhoe	99		97		95		91		91		91	
CS533E Vibratory Roller	100		100		98		95		91		86	
CS633E Vibratory Roller	100		100		100		100		91		86	
CP533E Sheepsfoot Compactor	100		100		98		95		91		100	
CP633E Sheepsfoot Compactor	100		100		100		100		91		86	
Light Truck - 1.5 Ton												
Supervisor's Truck												
Flatbed Truck												
Air Compressor + tools												
Welding Equipment												
Heavy Duty Drill Rig												
Pump (plugging) Drill Rig												
Concrete Pump												
Gas Engine Vibrator												
Generator 5KW												
HDEP Welder (pipe or liner)												
5 Ton Crane												
20 Ton Crane												
50 Ton Crane												
120 Ton Crane												
Trucks												
725	100		100		100		100		100		95	
730	100		100		100		100		100		95	
735	100		100		100		100		99		91	
740	100		100		100		100		99		91	
769D	100		100		100		93		88		82	
773E	100		100		100		100		93		85	
777D	100		100		100		100		93		87	
785C	100		100		100		93		86		80	
793C	100		100		100		100		100		93	
797B	100		100		100		100		100		93	
613E (5,000 gal) Water Wagon	100		100		100		100		95		87	
621E (8,000 gal) Water Wagon	100		100		100		100		97		90	
777D Water Truck	100		100		100		100		93		87	
785C Water Truck	100		100		100		93		86		80	
Dump Truck (10-12 yd^3) (5)												

Notes:
User entered deration value will override values from CAT Performance Handbook, except L2350 Loader: data from actual mine performance in Chile.
Komatsu altitude deration assumed from LeTourneau L235(