



# Public Service Commission

## State of North Dakota

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## Memorandum

**TO:** Mine Operators and Lignite Energy Council

**FROM:** Jim Deutsch, Director – Reclamation Division

**DATE:** August 12, 2014

**SUBJECT:** Annual update of variable costs contained in Policy Memorandum No. 16 to Mine Operators - Reclamation Cost Estimating Guidelines

Attached is the July 2014 variable costs update to the Reclamation Division's Reclamation Cost Estimating Guidelines used for calculating worst-case bond amounts for mining permits. This annual update contains the variable costs as of July 1, 2014. Several of the variable cost items changed with this update, but the average hourly rates of the listed equipment for the large mines have increased by only about 1% over the July 1, 2013 rates. The attachment includes a breakdown of the hourly equipment rates for 2014.

Since the average cost increase was minimal this year, mining companies will not be required to update all current worst-case reclamation cost estimates using the July 1, 2014 rates. However, for new and pending permit and revision applications that propose a new or revised worst-case reclamation scenario, these applications must use the updated variable costs attached to this memo.

The equipment list prices and suggested residual values were obtained from Butler Machinery. The fuel cost, an average cost over the past 12 months, was obtained from Fleet Services with the N. D. Department of Transportation. Average tire prices are based on quotes received from OK Tire and GRC Tire. The seed prices are based on quotes received from Chesak Seed House and Agassiz Seed and Supply. Custom farm work rates are based on 2013 data published by the ND Agricultural Statistics Service.

For small mines, the \$1.20 per cubic yard rate remains unchanged based on the bids the Commission's AML Division received this year. No updates to the worst-case reclamation cost estimates for small mines will be required this year due to the 2014 update of variable costs.

### Attachments

Minedata/memo industry/2014/bond\_var\_cost\_update\_8-12-14.docx

**POLICY MEMORANDUM NO. 16 TO MINE OPERATORS**

**RECLAMATION COST ESTIMATING GUIDELINE**

**VARIABLE COSTS**

**APPENDIX**

**July 2014 Data**

### Per Cubic Yard Earth-moving Cost for Small Mines

Costs for backfilling and grading and suitable plant growth material respread where the total quantity to be moved is 500,000 cubic yards or less will be calculated at a rate of \$1.20 per yard. (This rate will be reviewed and updated on July 1 of each year.)

### Equipment Prices and Replacement Tire Prices

The following equipment prices were furnished on August 1, 2014, by Butler Machinery as the current list price delivered as commonly equipped for reclamation work. These prices include a 5% discount and no taxes.

<u>Item</u>	<u>List Price Discounted</u>
D11T Tractor w/U Dozer & Ripper	2,500,000
D10T Tractor w/U Dozer & Ripper	1,680,000
D9T Tractor w/U Dozer & Ripper	1,143,000
657G Scraper w/Push-Pull	2,080,000
637G Scraper w/Push-Pull	1,390,000
993K Wheel Loader with 15 CY Bucket	2,888,000
777F End Dump Truck	1,995,000
16M Motor Grader w/Ripper	985,000

The following average current tire prices were furnished by OK Tire, and GRC Tire.

<u>Equipment</u>	<u>Tire Size</u>	<u>Price Each</u>
657G Scraper	40.5/75 R39 (E-3)	\$19,784
637G Scraper	37.25R35 (E-3)	\$16,938
16M Motor Grader	23.5 R25 (E-4)	\$ 6,334
993K Wheel Loader	50/65 R51 (L-5)	\$47,389
777F End Dump Truck	27.00R49 (E-4)	\$15,980

### Residual Values for Reclamation Equipment

The following are the residual percentages and values to be used for determining the cost per hour of reclamation equipment. Values shown were obtained from Butler Machinery.

<u>Item</u>	<u>Percentage of Original Cost</u>	<u>Residual Value</u>
D11T Tractor w/U Dozer & Ripper	35	875,000
D10T Tractor w/U Dozer & Ripper	40	672,000
D9T Tractor w/U Dozer & Ripper	37	425,000
657G Scraper w/Push-Pull	27	565,000
637G Scraper w/Push-Pull	38	525,000
16M Motor Grader w/Ripper	46	453,000
993K Wheel Loader W/15 CY Bucket	38	1,097,000
777F End Dump Truck	38	758,000

### Prime Interest Rate

The prime interest rate to be used for the calculation of interest on reclamation equipment is 3.25% for July 1, 2014, to June 30, 2015. Therefore, the total interest rate to be used for calculations is 5.25% as determined according to item III(A) on page 6 of this guideline.

### Fuel Cost

The cost of fuel for reclamation equipment from July 1, 2014 to June 30, 2015 is based on the average retail price for diesel in North Dakota from July 1, 2013 to June 30, 2014 obtained from Fleet Services Division of the ND Department of Transportation is \$3.1458 per gallon. Price includes cost of fuel, an administrative fee of \$0.012 per gallon and an oil fuel spill fee of \$0.0019 per gallon. Federal and state taxes are excluded from this price.

## Wages and Benefits

The revised wage rates were obtained from The International Union of Operating Engineers Local 49 on June 17, 2014, for Group 3 operators for Heavy Industrial. The updated base rates for workers compensation, unemployment benefits and social security were obtained from the respective agencies.

Hourly Rate for Labor - Group III	28.35
Pension, Health, Welfare, & Apprenticeship/Hour - Group III	16.75
Insurance - Assumed 1% of Hr. Labor Rate	0.28
Social Security - 7.65% of Hr. Labor	2.17
*Workers Compensation – 1.44% of Hr. Labor	0.41
$[(\$638.40) / (\$28.35 \times 2080 \text{ Hr.} \times 0.75)] = 0.0144$ or 1.44%	
*Unemployment – 7.41% of Hr. Labor	2.10
$[(\$3,279.36) / (\$28.35 \times 2080 \text{ Hr.} \times 0.75)] = 0.0741$ or 7.41%	
Total Hourly Operator Cost	\$50.06

\*Based on 40 hour week for 9 months of the year

## Custom Farm Work Rates

The following custom farm rates are taken from the publication "Custom Farm Work Rates, North Dakota, 2013" published by the NDSU Extension Service.

<u>Item</u>	<u>Rate/Acre</u>
Deep Chiseling	\$10.80
Small Grain Seeding	\$13.24
Application of Dry Fertilizer	\$6.15

## Fertilizer

The cost of 11-52-0 fertilizer for use in reclamation is \$584 per ton on 2014. This price is based on rates Average Annual Fertilizer Prices in the Northern Plains Region.

## Tree Prices

The cost of planting trees and shrubs on reclaimed land was determined by data provided by Natural Resource Conservation Office in Mercer County. (price includes planting)

\$25.50 per hundred feet of trees  
\$53.00 per hundred feet of fabric

## Seed Prices

The average seed prices on the following page were determined based on quotes from Chesak Seed House and Agassiz Seed and Supply in July 2014. (Seed prices are highly variable and may not reflect prices of seed later this year or next spring.)

## 2014 SEED PRICES

<u>Native Grasses</u>	<u>Cost/lb PLS</u>	<u>Introduced Grasses</u>	<u>Cost/lb PLS</u>
Big bluestem	<u>10.05</u>	Crested wheatgrass	<u>3.85</u>
Blue grama	<u>19.00</u>	Intermediate wheatgrass	<u>6.25</u>
Canada wildrye	<u>12.50</u>	Pubescent wheatgrass	<u>6.45</u>
Green needlegrass	<u>9.50</u>	Russian wildrye	<u>6.88</u>
Indian Grass	<u>19.00</u>	Smooth bromegrass	<u>2.63</u>
Little bluestem	<u>19.00</u>	Tall wheatgrass	<u>4.05</u>
Prairie sandreed	<u>35.50</u>	<b>Legumes</b>	
Sand bluestem	<u>26.25</u>	Alfalfa	<u>3.35</u>
Sideoats grama	<u>10.75</u>	Sweetclover yellow-flowered	<u>2.30</u>
Slender wheatgrass	<u>4.00</u>	Sweetclover white-flowered	<u>3.00</u>
Switchgrass	<u>7.13</u>		
Thickspike wheatgrass	<u>6.75</u>		
Western wheatgrass	<u>9.38</u>		
Prairie junegrass	<u>30.50</u>		
Buffalo Grass	<u>19.25</u>		

OWNERSHIP ASSUMPTIONS, INTEREST AND INSURANCE RATES:

July 1, 2014

Estimated Ownership Period (yrs) 7

Annual Use-hr 3,000  
Interest-% 5.25  
Sales Tax-% 5

Total Life-hr 20,000  
Insurance-% 0.75  
Fuel Cost/gal \$3.1458

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Machine designation.....	DOZER-D11T	DOZER-D10T	DOZER-D9T	SCRAPER-657G	SCRAPER-637G	GRADER-16M	WATER-WAGON	LOADER-993K	TRUCK-777F
<b>OWNING COSTS:</b>									
Delivered price (list - 5%).....	\$2,500,000	\$1,680,000	\$1,143,000	\$2,080,000	\$1,390,000	\$985,000	\$985,000	\$2,888,000	\$1,995,000
Tire replacement cost.....	\$0	\$0	\$0	\$79,136	\$67,750	\$38,001	\$38,001	\$189,554	\$95,880
Adjusted price.....=	\$2,500,000	\$1,680,000	\$1,143,000	\$2,000,864	\$1,322,250	\$946,999	\$946,999	\$2,698,446	\$1,899,120
Residual value at replacement (%).....	35	40	37	27	38	46	46	38	38
...Calculated Value.....=	\$867,225	\$672,000	\$422,910	\$561,600	\$528,200	\$453,100	\$453,100	\$1,097,440	\$751,884
Value to be recovered through work =	\$1,632,775	\$1,008,000	\$720,090	\$1,439,264	\$794,050	\$493,899	\$493,899	\$1,601,006	\$1,147,236
Cost per hour (value/total hours).....+	\$81.64	\$50.40	\$36.00	\$71.96	\$39.70	\$24.69	\$24.69	\$80.05	\$57.36
Interest costs per hour.....+	\$25.00	\$16.80	\$11.43	\$20.80	\$13.90	\$9.85	\$9.85	\$28.88	\$19.95
Insurance costs per hour.....+	\$3.57	\$2.40	\$1.63	\$2.97	\$1.99	\$1.41	\$1.41	\$4.13	\$2.85
Sales tax cost per hour.....+	\$6.25	\$4.20	\$2.86	\$5.20	\$3.48	\$2.46	\$2.46	\$7.22	\$4.99
>>>>>>HOURLY OWNING COST:	\$116.46	\$73.80	\$51.92	\$100.93	\$59.06	\$38.41	\$38.41	\$120.28	\$85.15
<b>OPERATING COSTS:</b>									
Fuel consumption (gal/hr).....	23	15.5	12.5	30.5	23	6.5	6.5	22	14
Fuel cost per hour.....	\$72.35	\$48.76	\$39.32	\$95.95	\$72.35	\$20.45	\$20.45	\$69.21	\$44.04
Lube oil, filter, grease w/labor (hr).+	\$11.79	\$7.88	\$6.00	\$12.55	\$10.16	\$4.20	\$4.20	\$11.08	\$10.42
Tire life (hours).....				5,000	5,000	10,000	10,000	10,000	10,000
Tire cost per hour.....+	\$0.00	\$0.00	\$0.00	\$15.83	\$13.55	\$3.80	\$3.80	\$18.96	\$9.59
Overhaul/repair reserve .....+	\$35.16	\$23.55	\$19.93	\$25.99	\$22.58	\$12.60	\$12.60	\$13.90	\$24.95
Repair &/or maintenance.....+	\$37.98	\$23.94	\$20.42	\$29.87	\$26.42	\$9.25	\$9.25	\$15.70	\$15.37
Wear Items, GEC .....+	\$4.52	\$3.00	\$2.69	\$0.79	\$0.65	\$0.62	\$0.62	\$1.62	
>>>>>HOURLY OPERATING COST:	\$161.80	\$107.13	\$88.36	\$180.97	\$145.72	\$50.92	\$50.92	\$130.47	\$104.37
Operators hourly wage.....+	\$50.06	\$50.06	\$50.06	\$50.06	\$50.06	\$50.06	\$50.06	\$50.06	\$50.06
Total hourly rate.....=	\$328.32	\$230.99	\$190.34	\$331.97	\$254.84	\$139.39	\$139.39	\$300.80	\$239.58
Overhead and profit @ 15%.....+	\$49.25	\$34.65	\$28.55	\$49.80	\$38.23	\$20.91	\$20.91	\$45.12	\$35.94
>>>>>TOTAL ESTIMATED HOURLY COST:	<b>\$377.57</b>	<b>\$265.64</b>	<b>\$218.89</b>	<b>\$381.76</b>	<b>\$293.06</b>	<b>\$160.30</b>	<b>\$160.30</b>	<b>\$345.92</b>	<b>\$275.51</b>
FOR:	DOZER-D11T	DOZER-D10T	DOZER-D9T	SCRAPER-657G	SCRAPER-637G	GRADER-16M	WATER-WAGON	LOADER-993K	TRUCK-777F