



# 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:** September 4, 2012

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

Attached is the July 2012 variable cost update to the Reclamation Division's Reclamation Cost Estimating Guidelines used for calculating bond amounts for mining permits. This annual update contains the variable costs as of July 1, 2012. Several of the variable costs were affected by this year's update, with the largest increases in the overhaul and repair items, fuel and seed. The hourly rates for most of the listed equipment for use at the large mines average around 5%. Since the average cost increase was not higher than that percentage, mining companies will not be required to update all current worst-case reclamation cost estimates using the July 1, 2012 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 list prices for equipment and suggested residual values were obtained from Butler Machinery in August. The fuel cost was adjusted this year to use the average weekly cost over the past 12 months (July 1, 2011 to June 30, 2012) as reported by Fleet Services with the ND Department of Transportation. The tire prices were obtained from OK Tire and GRC Tire of Bismarck. Seed prices were obtained from Chesak Seed House. The custom farm work rates use the 2010 data published by the NDSU Extension 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 will be required this year for the small mines.

Attachment

m\Memo Industry\2012\bond\_var\_cost\_update\_8-2012

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

**RECLAMATION COST ESTIMATING GUIDELINE**

**VARIABLE COSTS**

**APPENDIX**

**August 2012 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 16, 2012, by Greg O'Shea of 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	\$2,300,000.00
D10T Tractor w/U Dozer & Ripper	1,390,000.00
D9T Tractor w/U Dozer & Ripper	1,040,000.00
657G Scraper w/Push-Pull	1,825,000.00
637G Scraper w/Push-Pull	1,260,000.00
993K Wheel Loader with 15 CY Bucket	2,370,000.00
777F End Dump Truck	1,995,000.00
16M Motor Grader w/Ripper	920,000.00

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

<u>Equipment</u>	<u>Tire Size</u>	<u>Price Each</u>
657G Scraper	40.5/75 R39 (E-3)	\$18,390.00
637G Scraper	37.25R35 (E-3)	14,191.00
16M Motor Grader	23.5 R25 (E-4)	5,795.00
993K Wheel Loader	50/65 R51(L-5)	50,225.00
777F End Dump Truck	27.00R49 (E-4)	15,808.00

### **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 are from contact with Brian Rebel of Butler Machinery.

<b><u>Item</u></b>	<b><u>Percentage of Original Cost</u></b>	<b><u>Residual Value</u></b>
D11T Tractor w/U Dozer & Ripper	35	\$800,000.00
D10T Tractor w/U Dozer & Ripper	40	550,000.00
D9T Tractor w/U Dozer & Ripper	36	375,000.00
657G Scraper w/Push-Pull	25	460,000.00
637G Scraper w/Push-Pull	33	426,000.00
16M Motor Grader w/Ripper	45	415,000.00
993K Wheel Loader W/15 CY Bucket	39	915,000.00
777F End Dump Truck	38	750,000.00

### **Prime Interest Rate**

The prime interest rate to be used for the calculation of interest on reclamation equipment is 3.25% for July 1, 2012, to June 30, 2013. 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, 2012 to June 30, 2013 is based on the average retail price from July 1, 2011 to June 30, 2012 obtained from Fleet Services Division of the ND Department of Transportation is \$3.2234 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 Operating Engineers Local on August 21, 2012, 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	\$26.40
Health, Welfare, & Apprenticeship/Hour - Group III	15.85
Insurance - Assumed 1% of Hr. Labor Rate	0.26
Social Security - 7.65% of Hr. Labor	2.02
*Workers Compensation – 1.42% of Hr. Labor [ $(\$583.11) / (\$26.40 \times 2080 \text{ Hr.} \times 0.75) = 0.0142$ or 1.42%]	0.37
*Unemployment – 6.71% of Hr. Labor [ $(\$2,764.89 / (\$26.40 \times 2080 \text{ Hr.} \times 0.75) = 0.0671$ or 6.71%]	1.77
Total Hourly Operator Cost	\$46.67

\*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, 2010" published by the NDSU Extension Service.

<u>Item</u>	<u>Rate/Acre</u>
Deep Chiseling	\$9.09
Small Grain Seeding	10.93
Application of Dry Fertilizer	5.17

## Fertilizer

The cost of 11-52-0 fertilizer for use in reclamation is \$0.38 per pound on August 21, 2012. This price is based on rates from Agrilience-Agronomy Center.

## 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)

\$21.50 per hundred feet of trees  
\$52.00 per hundred feet of fabric

## Seed Prices

The seed prices on the following page were determined based on a quote from Chesak Seed House in August 2012. (Seed prices are highly variable and may not reflect prices of seed later this year or next spring.)

## 2012 -2013 AVERAGE SEED PRICES

<u>Native Grasses</u>	<u>Cost/lb PLS</u>	<u>Introduced Grasses</u>	<u>Cost/lb PLS</u>
Big bluestem	<u>11.50</u>	Crested wheatgrass	<u>2.25</u>
Blue grama	<u>20.00</u>	Intermediate wheatgrass	<u>2.75</u>
Canada Wildrye	<u>8.50</u>	Pubescent wheatgrass	<u>2.75</u>
Green needlegrass	<u>5.00</u>	Russian wildrye	<u>5.50</u>
Indian Grass	<u>12.50</u>	Smooth bromegrass	<u>2.75</u>
Little bluestem	<u>13.50</u>	Tall wheatgrass	<u>2.75</u>
Prairie sandreed	<u>8.50</u>	<b>Legumes</b>	
Sand bluestem	<u>16.00</u>	Alfalfa	<u>2.50</u>
Sideoats grama	<u>13.50</u>	Sweetclover yellow-flowered	<u>1.65</u>
Slender wheatgrass	<u>4.00</u>		
Switchgrass	<u>4.50</u>		
Thickspike wheatgrass	<u>8.00</u>		
Western wheatgrass	<u>5.00</u>		
Prairie junegrass	<u>40.00</u>		
Buffalo Grass	<u>20.00</u>		

\*\*\*This information to be used in bond cost estimating calculations and can be inserted into a spread sheet to calculate the bond amount.

OWNERSHIP ASSUMPTIONS, INTEREST AND INSURANCE RATES:

Estimated Ownership Period (yrs)	7	Annual Use-hr	3,000	Total Life-hr	20,000
		Interest-%	5.25	Insurance-%	0.75
		Sales Tax-%	5	Fuel Cost/gal	\$3.2234

Machine designation..... (1) DOZER-D11T (2) DOZER-D10T (3) DOZER-D9T (4) SCRAPER-657G (5) SCRAPER-637G (6) GRADER-16M (7) WATER-WAGON (8) LOADER-993K (9) TRUCK-777F

Delivered price (list - 5%).....	\$2,300,000	\$1,390,000	\$1,040,000	\$1,825,000	\$920,000	\$920,000	\$2,370,000	\$1,995,000
Tire replacement cost.....	\$0	\$0	\$0	\$73,560	\$56,764	\$34,770	\$200,900	\$94,848
Adjusted price.....=	\$2,300,000	\$1,390,000	\$1,040,000	\$1,751,440	\$1,203,236	\$885,230	\$2,169,100	\$1,900,152
Residual value at replacement (%).....	35	40	36	25	33	45	39	38
...Calculated Value.....=	\$797,847	\$556,000	\$373,333	\$456,250	\$420,000	\$414,000	\$924,300	\$751,884
Value to be recovered through work =	\$1,502,153	\$834,000	\$666,667	\$1,295,190	\$783,236	\$471,230	\$1,244,800	\$1,148,268
Cost per hour (value/total hours).....+	\$75.11	\$41.70	\$33.33	\$64.76	\$39.16	\$23.56	\$62.24	\$57.41
Interest costs per hour.....+	\$23.00	\$13.90	\$10.40	\$18.25	\$12.60	\$9.20	\$23.70	\$19.95
Insurance costs per hour.....+	\$3.29	\$1.99	\$1.49	\$2.61	\$1.80	\$1.31	\$3.39	\$2.85
Sales tax cost per hour.....+	\$5.75	\$3.48	\$2.60	\$4.56	\$3.15	\$2.30	\$5.93	\$4.99
>>>>>>>HOURLY OWNING COST:	\$107.14	\$61.06	\$47.82	\$90.18	\$56.71	\$36.38	\$95.25	\$85.20

Fuel consumption (gal/hr).....	23	15.5	12.5	30.5	23	6.5	6.5	14
Fuel cost per hour.....	\$74.14	\$49.96	\$40.29	\$98.31	\$74.14	\$20.95	\$70.91	\$45.13
Lube oil, filter, grease w/labor (hr).....+	\$11.79	\$7.88	\$6.00	\$12.55	\$10.16	\$4.20	\$11.08	\$10.42
Tire life (hours).....				5,000	5,000	10,000	10,000	10,000
Tire cost per hour.....+	\$0.00	\$0.00	\$0.00	\$14.71	\$11.35	\$3.48	\$20.09	\$9.48
Overhaul/repair reserve.....+	\$35.16	\$23.55	\$19.93	\$25.99	\$22.58	\$12.60	\$13.90	\$24.95
Repair &/or maintenance.....+	\$37.98	\$23.94	\$20.42	\$29.87	\$26.42	\$9.25	\$15.70	\$15.37
Wear Items, GEC.....+	\$4.52	\$3.00	\$2.69	\$0.79	\$0.65	\$0.62	\$1.62	
>>>>>>>HOURLY OPERATING COST:	\$163.58	\$108.33	\$89.33	\$182.23	\$145.30	\$51.10	\$133.31	\$105.35
Operators hourly wage.....+	\$46.67	\$46.67	\$46.67	\$46.67	\$46.67	\$46.67	\$46.67	\$46.67
Total hourly rate.....	\$317.40	\$216.06	\$183.82	\$319.07	\$248.68	\$134.14	\$275.23	\$237.22
Overhead and profit @ 15%.....+	\$47.61	\$32.41	\$27.57	\$47.86	\$37.30	\$20.12	\$41.28	\$35.58
>>>>>>>TOTAL ESTIMATED HOURLY COST:	\$365.01	\$248.47	\$211.39	\$366.94	\$285.99	\$154.27	\$316.51	\$272.80

FOR: DOZER-D11T DOZER-D10T DOZER-D9T SCRAPER-657G SCRAPER-637G GRADER-16M WATER-WAGON LOADER-993K TRUCK-777F