M/023/007

STEFFEN ROBERTSON AND KIRSTEN
Consulting Engineers

November 25, 1987
SRK Project No. 13701

State of Utah
Department of Natural Resources
Division of Oil, Gas, and Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Attention: Mr. David Wham

Dear David,

Enclosed are three (3) copies of the "Reclamation Equipment and Costs" to accompany the "Notice of Intent" for the Tintic Project. As we discussed on the telephone, these costs are based on recent rates currently being charged by contractors in the local region in Utah around the project site. The most expensive item for costs in reclamation is the hauling of topsoil. Recent quotes for this activity on the site were $0.50/yd, but a value of $1.25 was used in the cost estimation based on typical costs for hauling soils. The rest of the unit costs are typical for the area.

If you have any questions or require further details on how the cost estimates were derived, please call or let me know.

Respectfully,

STEFFEN ROBERTSON AND KIRSTEN
(COLORADO) INC.

Phil DeDycker by SPB

Phillip M. DeDycker
Project Manager

PMD/dkh

Enclosures

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DIVISION OF
OIL, GAS & MINING

3232 South Vance Street, Suite 210, Lakewood, Colorado 80227, U.S.A.
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Other offices in: U.S.A., Canada, United Kingdom and Africa

RECLAMATION EQUIPMENT AND COSTS

Supplement to Notice of Intent

Tintic Project

North Lily Mining Company

1.0 UNIT COSTS AND RANGES

The equipment and materials that can be used in the reclamation of the Tintic Project are detailed in this section, and the unit costs tabularized. The heavy equipment needed for dozing, grading, and drainage control are available onsite from the mining operations. Equipment to be used during final reclamation and revegetation will need to be located in this area of Utah either from local ranchers or from reclamation contractors.

The costs given here are based on recent quotes from contractors in this area or from actual rates currently in use at the site. These costs reflect the current state of the local economy, but should be valid for the life of the project of three years.

Equipment onsite that can be used for reclamation:

TD20 dozer, International,
Dump truck, 15 cu yd capacity,
980C loader, Caterpillar 5.5 cu yd capacity,
120B road grader, Caterpillar equipped with rippers,
31S backhoe tractor, Kamatsu, and
637 scraper, Caterpillar 25 cu yd capacity.

Reclamation equipment (will be hauled periodically to site):

Rangeland drill,
Farm tractor,
Discs, rake, harrow, etc.,
Hay spreader (mechanical blower), and
Crimper

Revegetation Materials:
Seed,
Hay, or hydromulch,
Fertilizer, and
Soil amendments.

For estimation purposes, the costs of reclamation are broken down into equipment, labor and materials costs; then into a per acre cost for revegetation. The estimated costs are given first for typical contractor prices for this area, and then a range to be expected in central Utah depending on availability, location, and contract prices.

Estimated reclamation costs on a unit basis for the Tintic Project:

Type	$/hr	
	Unit	Range
Equipment (includes fuel and maintenance		
Dozer	50	40-85
Grader	45	45-55
Loader	65	55-70
Backhoe	35	35-50
Scraper	1.25/yd	.50-2.25/yd
Labor Costs		
Heavy equipment operator	10	8-12
Laborer	7	7-9
Foreman	12	12-14
Subsistance/day/man	30	25-40
Material Costs		
Seed		
grass	5.50/lb	1-20/lb
shrub	35/lb	20-90/lb
seedlings	.80/each	.50/1.75/each
Hay	295/ton	270-315/ton
Fertilizer	295/ton	270-315/ton
Soil amendments	5.75/lb	3.50-8.75/lb

Contractor Costs for Revegetation	550/acre	400-1100/acre
(soil amending and preparation, seeding and mulching)		

2.0 PROJECT COMPONENT COSTS

The project component costs are estimated on a contractor basis, not the actual costs to the North Lily Mining Company, which will perform most of the reclamation work. The time for equipment usage is estimated either on a linear or acreage basis.

1. Interim reclamation of the tailings dump area

Rough grading	
Dozer - 24 hrs @ $50/hr	1,200
Grader - 8 hrs @ $45/hr	360
Topsoil placement	
12,100 yds @ $1.25/yd	15,125
Final grading/drainage	
Grader - 24 hrs @ 45/hr	1,080
Revegetation	
Materials - 15 ac @ $285/ac	4,275
Contractor - 15 ac @ $550/ac	8,250
Subtotal	30,290

2. Final Reclamation

Building removal, site cleanup	
Equipment & labor estimate	5,760
Final Grading and stabilization	
Dozer - 80 hrs @ $50/hr	4,000
Grader - 56 hrs @ $45/hr	2,530
Backhoe - 24 hrs @ $35/hr	840
Topsoil placement	
25,000 yds @ $1.25/yd	31,250
Final drainage and sediment control	
Dozer - 40 hrs @ $50/hr	2,000
Grader - 20 hrs @ $45/hr	900

Revegetation		
Materials - 15.5 ac @ 285/ac		4,410
Contractor - 15.5 ac @ $550/ac		8,525
Monitoring		
Survey - 2 yrs @ $1,000/yr		2,000
	Subtotal	60,225
Reclamation Costs: Total		$90,515

The final estimated costs for reclamation activities alone (minus decommissioning and drainage control) are about $2,700 per acre for the 30 acres on the Tintic Project. This cost should be fully adequate for the reclamation since no unusual conditions are anticipated.

Norman H. Bangerter
Governor

Suzanne Dandoy, M.D., M.P.H.
Executive Director

RE: North City Mining Co. M/023/007

TINTIC PROJECT
Mining Heap Leaching Process
Cannon Health Building Room 336
September 30, 1987

Name	Representing	Phone
Dale Parker	Environmental Health/Admin.	(801) 538-6121
Larry Mize	Drinking Water/Sanitation	538-6163
Susan Toronto	Solid/Hazardous Waste	538-6170
David Kopta	Air Quality	538-6108
Charlie Dietz	Water Pollution Control	538-6146
Frank Jensen	Div. of Oil Gas & Mining	538-5340
Frank Filas	Div. of Oil Gas & Mining	538-5340
Dave Wham	Div. of Oil Gas & Mining	538-5340
Philip DeDycker	Steffen/Robertson & Kristen	(303)985-1333
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Kenneth L. Alkema, Director • Division of Environmental Health

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