

Aries Project Prefeasibility Study Optimization Report

Submitted to:
RAM River Coal Corporation

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EXECUTIVE SUMMARY

Following the completion of the Aries Project Pre-feasibility Study (PFS) in April 2017, the Ram River Coal Corp. (RAM) team identified a series of potential optimizations which may have a positive impact on the project economics. The key areas of focus included additional analysis of the following items:

- Leasing mining equipment.
- Plant annual run-time.
- Infrastructure contingency factors.
- Site overhead costs.
- Increasing equipment utilization.
- Larger capacity mine rock trucks.
- Discount Rate Sensitivity analysis.

This optimization report builds upon the April 2017 PFS and primarily discusses the areas of the PFS which could be updated with revised data and economic figures. A revised PFS level cost model has also been created in conjunction with this report and it demonstrates the following changes from the April 2017 study:

- Decreased initial project capital costs to US\$446M (April PFS = US\$771M)
- Increased after-tax NPV to US\$843M (April PFS = US\$641M)
- Increased after-tax IRR to ~24% (April PFS = 18.8%)
- Increased after-tax project cash flow to US\$3.6B (April PFS = US\$3.3B).
- Reduced payback period to 4 years (April PFS = 4.8 years).
- Marginal increase in site operating costs to US\$91.16/clean product tonne (April PFS = US\$88/CPT)

All operating and capital costs for the Aries Project PFS were developed in constant 2017 Canadian Dollars unless otherwise stated. The operating, capital and economics presented in this optimization report have been converted into US dollars using the same exchange rate as in the PFS, 0.75 USD : 1 CND. The conversion has been rounded to two decimal places and any discrepancies are due to rounding.

The PFS Optimization analysis has demonstrated the initial capital cost estimate can be reduced by approximately \$326M following the changes summarized in Table 1. The reduction in capital costs is primarily related to leasing of the mine equipment (instead of purchase) and reducing certain contingency

factors based on the level of design and risk factors used for the site infrastructure and processing facilities.

Table 1
Initial Capital Cost Reductions

Initial Capital Costs	PFS Results (\$M)	PFS Optimization (\$M)	Difference (\$M)
Direct	\$559	\$278	(\$281)
In-direct	\$65	\$65	\$0
Owner's Costs/Reclamation Bond	\$33	\$33	\$0
Sub-total	\$657	\$377	(\$281)
Contingency	\$114	\$69	(\$45)
Total	\$771	\$446	(\$326)

The overall operating costs have been updated to reflect a number of project optimizations as detailed in Table 2, including the costs of leasing major mine equipment. The leasing of the mine equipment increases the direct mine operating unit cost by US\$4.64/CPT (clean product tonne of coal) as compared to the Aries PFS operating costs. However, additional optimizations have partially offset the increased leasing option operating costs by \$1.49/CPT with the net effect of the project average operating costs increasing \$3.15/CPT, or 3.6%.

Table 2
Operating Unit Costs

Cost Center	PFS Costs (\$/CPT)	PFS Optimization (\$/CPT)	Difference (\$/CPT)
Surface Mining - Direct Coal, Waste Coal & O/B	\$45.23	\$49.88	\$4.64
General and Administration	\$5.70	\$5.31	(\$0.39)
Processing Costs	\$5.00	\$4.37	(\$0.64)
Rail and Port Cost	\$31.10	\$31.10	\$0.00
Offsite Administration	\$0.95	\$0.48	(\$0.47)
Average Operating Cost	\$87.98	\$91.13	\$3.15

The key changes made in the PFS optimization study included reducing the mine capital through the leasing of mine equipment, increasing the plant utilization by optimizing the mine fleet run-times through a revised mine plan, and evaluating larger capacity mine rock trucks to look for savings in operating and

capital costs. Each of these optimizations had an incremental improvement to the Aries PFS economics which resulted in the changes detailed below.

The optimization of the Aries Project PFS indicates the project could generate after-tax free cash flows of approximately \$3.6B. The results of the revised economic analysis in terms of after-tax net present value (8% discount rate NPV₈), internal rate of return (IRR%), payback period, and after-tax cashflow, are shown in Table 3 for the optimization assumptions. The conversions have been rounded to two decimal places.

Table 3
Economic Results

Performance Metric	PFS Results	PFS Optimization	Difference
Payback Period (years)	4.8	4.0	-0.8
After-tax Cashflow (\$B)	\$3.29	\$3.60	+\$0.32
After-tax NPV ₈ (\$M)	\$641	\$843	+\$202
After-tax Internal Rate of Return (%)	18.8%	23.7%	+4.9%

The Aries Project PFS economic analyses were based on an 8% discount rate and this has been carried through for the optimization analyses. However, a discount rate sensitivity analysis was conducted to illustrate the varying effect of the discount rate on the NPV. The after-tax NPV values were calculated for a range of discount rates as shown in Table 4. The range shown covers the typical rates for other projects in western Canada.

Table 4
Discount Rate Sensitivity analysis

Discount Rate	After-tax NPV (\$M)
5%	\$1,414
6%	\$1,187
7%	\$1,000
8%	\$843
9%	\$711
10%	\$599

1 INTRODUCTION

Ram River Coal Corporation (RAM) engaged Norwest to complete a prefeasibility study (PFS) for its Aries metallurgical coal project located west of Rocky Mountain House, Alberta. The PFS study was completed in April 2017 and showed the positive economics for a surface operation producing 4Mtpa clean coal with a mine life of over 30 years.

Upon completion of the PFS, the RAM team identified a number of potential optimization opportunities which they asked Norwest to review and evaluate for their effect on project economics. The key optimizations that were evaluated in this optimization report include:

- Leasing mining equipment – Reduce capital costs through leasing/financing of mining fleet.
- Plant run-time – Increase plant run-time hours and to review effect on capital and operating costs.
- Infrastructure contingency – Review infrastructure contingency factors.
- Site overhead – Reduce site overhead by operating the mine with a more efficient corporate structure.
- Maximizing equipment utilization – Increase major mine equipment operating time; this required the development of a revised mine plan.
- Larger capacity mine trucks – Potential to decrease fleet size and increase truck productivity.
- Discount rate sensitivity analysis – Evaluate the effect of the discount rate on NPV.

All operating and capital costs for the Aries Project PFS were developed in constant 2017 Canadian Dollars, unless otherwise stated. The operating, capital and economics presented in this optimization report have been converted into US dollars using same the exchange rate as in the PFS, \$0.75 USD : \$1 CND.

2 LEASING OF MINING EQUIPMENT

The Aries Project PFS economics were based on a 100% equity model for financing. The current market for leasing major mobile mining equipment is favourable as equipment manufacturers are aggressively marketing equipment and providing competitive leasing terms and rates. While the leasing of major mining equipment would reduce initial capital outlays, the capital savings would be offset by increased operating costs due to the lease payments.

To investigate the project impacts of leasing the major mobile mining equipment, Norwest contacted Komatsu to understand the potential costs and leasing terms associated with leasing of mining equipment. The rates included in the revised cost model and associated with this optimization report are based on a 2017 quote from Komatsu and reflect the leasing rates at the time of the quote. The key terms of the leasing are as follows:

- 15% down payment.
- Five-year term.
- 4.6% Interest rate.

Norwest used the base case cashflow model (owner-purchased equipment or 100% equity model) and modified it to reflect a lease mining equipment model for the purposes of a comparative analysis. A lease payment schedule was developed based on the same equipment purchase and replacement schedule that was used to determine the major equipment capital cost schedule in the owned-equipment base case. No salvage value was applied in both cases. Equipment capital costs were then reduced in the lease model while the lease payments from the lease schedule were added to the operating costs.

The leasing of the mine equipment increases the direct mine operating unit costs by US\$4.64/CPT (clean product tonne of coal) as compared to the Aries PFS operating costs. However, additional optimizations have partially offset the leasing option cost increase with the net effect of the project average operating costs increasing by \$3.15/CPT or 3.6%. The initial capital cost estimate for the PFS included the mine capital to Year 2 of the project. The leasing costs to Year 2, which total \$178M including a \$16M contingency, were not included in the initial capital costs for the PFS optimization. These costs are being treated as sustaining capital costs in the revised cost model and the reallocation doesn't impact the Aries project economics.

For the basis of this optimization report, should RAM lease the mobile mining equipment for the life of mine, it could have a positive impact on the economics of the Aries Project by:

- Reducing the initial direct capital costs by \$281M.
- Improving the after-tax IRR by 1.2% to 20.0%.
- Improving the after-tax NPV₈ by \$27M to \$670M.

It is recommended that RAM further examine the benefits of limited periods of leasing the mining equipment as once the project is generating positive cashflow, self-financing to purchase equipment may be more attractive in terms of project economics.

3 PLANT OPTIMIZATIONS

Norwest developed the Aries PFS coal preparation plant (CPP) on the basis of selecting robust equipment to target extended run-times, which are consistent with best practice industry standards. The plant run-time or “on coal” time was based on Norwest’s regional experience where average annual run-time ranges from 6,500 to 7,000 hours per year. International experience has shown increased run-times are possible using optimized operational and maintenance strategies for process plant operations.

Norwest completed a revised mine plan and considered maximizing the use of the mobile mine fleet to increase the coal being delivered to the plant in order to take advantage of increased plant run-time. The utilized plant run-time was increased over the entire life of the project because of the maximum use of the mine fleet.

In the PFS, the average run-time after the ramp-up period was 6,348 hours/year equivalent to a plant utilization of approximately 84%. The optimization process increased the plant available run-time by assuming a 365-day scheduled year (no statutory holidays) and adopting best-in-class maintenance and operational plans which allow for scheduled plant run-time hours of 7,500 per year. The average run-time per year for the updated mine plan associated with this optimization report was 6,740 hours per year (plant utilization of 90%) which represents an increase of 392 hours (approx. 16 days) over the PFS. The change in plant operating time results in a 6% increase in plant run-time over the life of the project.

The mine raw coal production rate dictates the clean coal production rate not the plant throughput rate for the project. The benefit of the optimized plant operation is that during periods of higher than average mine coal production, the process plant is available to meet these

high demand periods. As detailed in Sections 6 and 7 of this report, the mine fleet has been fully optimized without increasing the capital requirements for the mine fleet in order to maximize plant throughput.

3.1 Effect of Increased Plant Run-time on Operating Costs

The plant operating costs have both fixed and variable costs components. By running the plant for more hours, the fixed costs are reduced on a per tonne basis. The split between fixed and variable costs is approximately 34% fixed and 66% variable on average for the Aries operation. Increasing the plant coal-on run-time to 6,740 hours per year results in the plant's operating costs being reduced by 5% or \$0.27/CPT from the PFS average cost of US\$4.60/CPT for an average operating cost of US\$4.33/CPT over the project life. This cost reduction would have the following impact on the economics of the project:

- Improving the after-tax IRR by 0.1% to 20.1%.
- Improving the after-tax NPV₈ by \$5M to \$674M.

3.2 Reduced Plant Personnel

Norwest carefully reviewed the manning requirements for the process plant and has reduced the number of hourly employees by eight (two per shift) and the amount of overtime, compared to the PFS. Labour makes up approximately 23% of the plant operating costs. The resulting cost reductions have the following impact on the revised economics of the project:

- Improving the after-tax IRR by 0.2% to 20.3%.
- Improving the after-tax NPV₈ by \$11M to \$685M.

4 CAPITAL COSTS CONTINGENCIES

Different contingency factors were applied to the respective capital cost estimates in the PFS to address the varying degrees of uncertainty and risk associated with the estimates for certain components of the project. These contingencies are detailed in Table 5. After discussions between RAM and Norwest, it was decided to further review the capital contingencies based on the level of project design and associated risk factors. The mine equipment capital is considered to have the least risk associated with the capital purchases and therefore has the lowest contingency as the estimates are based on vendor supplied quotes for individual pieces of equipment. The rail extension carries the most risk based on the current lack of geotechnical data along the proposed corridor. However, the original PFS contingency included a contingency on top of the costs

associated with the engineering and project management of design work. The revised contingency factors more accurately reflect where additional design and site investigation work is required, or where site conditions could affect construction and development costs (e.g. overland conveyor and rail loadout facilities). The equivalent overall weighted capital contingency factor is 17% for years -3 to start of production.

Table 5
Capital Costs Contingency Allowances

Capital Category	PFS (%)	Revised Contingencies (%)
Plant and Processing Facilities	25%	20%
Mining Equipment	10%	10%
Mining Infrastructure	25%	20%
Maintenance Infrastructure	25%	20%
Rail Line Extension	30%	24%*

*Removed contingency from the engineering and project management portion of cost estimate.

The capital costs contingency reductions in this optimization report would have the following impact on the economics of the project:

- Reducing Initial Capex contingency by \$19M.
- Improving the after-tax IRR by 0.5% to 20.8%.
- Improving the after-tax NPV₈ by \$12M to \$697M.

5 SITE OVERHEAD

The revised site general administration and overhead costs (detailed in Table 6) are based on typical requirements needed to service a mine of this size, including contractors, consultants, legal fees and other costs associated with running a large surface mine. The changes to the site overhead costs incorporated in this optimization report were identified by RAM and Norwest personnel during the review and rationalization of the overhead requirements. The revised estimates reflect an effective and efficient management structure which RAM would commit to for the operation.

The site overhead includes offsite and onsite management costs, as well as marketing costs. The marketing costs can sometimes be included in other areas, such as offsite transportation costs, which could show lower overheads when compared to other operations.

Personnel costs were included in the general administration unit cost and include management and supervisory personnel as well as technical, managerial, and clerical personnel required for on-going mine operations. Wage rates were based on current western Canadian salary rates and were reduced 4% to reflect the current depressed mining labour market in Alberta (note that these lower wage rates are mainly dependent upon a depressed oil price). In addition to the reduction in salaries, there were five positions deemed unnecessary based on RAM's management approach and were removed.

The corporate technical positions were eliminated and allowances for travel and corporate development reduced to be consistent with a corporation with single mining operation. The corporate allocation costs include costs associated with the senior executive and management group, maintaining a head office (Calgary or Vancouver based), submission of corporate filings, as well as an internal coal marketing team. The annual corporate head office allocation costs have been reduced to \$1.7M per year to reflect an efficient management structure.

Table 6
Annual Site General Administration and Overhead Costs

	PFS Cost Estimates (\$M)	Revised Estimates (\$M)	Annual Savings (\$M)
Total Staff/Salary	\$7.8	\$7.4	\$0.5
Head Office	\$3.8	\$1.7	\$2.0
Total	\$26.2	\$23.7	\$2.5

5.1 Overhead Operating Costs

Based on the cost reductions presented in Table 6, a weighted average of the annual site general administration and overhead cost on a \$/CPT basis is summarised in Table 7, which are based on the revised 30 year mine plan.

Table 7
Annual Site General Administration and Overhead Costs per Clean tonne

Cost Center	PFS (\$/CPT)	Revised (\$/CPT)
General and Administration	\$5.70	\$5.59
Offsite Administration	\$0.95	\$0.44
Weighted Average Operating Cost	\$6.65	\$6.02

The overhead cost reduction in this optimization report have the following impact on the economics of the revised cost model:

- Improving the after-tax IRR by 0.3% to 21.1%.
- Improving the after-tax NPV₈ by \$16M to \$713M.

6 OPERATING EFFICIENCIES

The PFS operating schedule was based on standard shift changes, where operators would shut down the equipment prior to completing the shift change. This typically allows time for travel to and from the equipment to the mine dry and to complete any scheduled shift inspections. Given the capital investment in equipment, it was recommended that the shift change be moved to a “active” style of shift change. This style of shift change reduces the equipment downtime, however increases personnel costs by paying the operator an additional half an hour of overtime to show up early for their shift to be waiting near the operating equipment to minimize downtime. This increases the operating hours of the equipment as detailed in Table 8.

Table 8
Operating Hours Increase

	P&H 4100	930E/980E
PFS Operating Hour Estimates	6,170	5,651
PFS SMU Hour Estimates	6,559	6,080
Active Shifting Operating Hour Estimate	6,582	6,139
Active Shifting SMU Hour Estimates	6,892	6,449

The net effect of the increased operating hours includes a 7% increase in mine rock production compared to a similar sized fleet with active shifting. This increase in mine rock movement resulted with increased annual production which reduced the mine life from 33 years to 30 years when the new schedule was developed. The effect of increasing the production rate decreases the fixed cost per tonne. In addition to this, increasing the annual production rate has the effect accelerating positive cashflow for the project which allows for the capital to be paid off faster.

The revised mine plan was based on the same pit designs, mine rock storage facilities, and mining sequence to minimize the initial strip ratio, optimize mining productivity and maximize backfill of mine rock in-pit. The key driver was the requirement to place mine rock in-pit to minimize the external Mine Rock Storage Facility (MRSF) footprint and shorten waste hauls. This was achieved

with the revised mine plan by using the same pre-production sequence and initial production levels which allowed for the efficient placement of mine rock.

The increased operating hours in this optimization report have the following impact on the revised economics of the project:

- Improving the after-tax IRR by 1.5% to 22.6%.
- Improving the after-tax NPV₈ by \$67M to \$780M.

7 LARGER CAPACITY MINE ROCK TRUCKS

As part of the PFS optimization review, the benefit of increasing the haul truck size from 292 tonne (base case) to 363 tonne was evaluated. The change shows an improvement in productivity; however, it also increases the equipment capital and operating costs. Table 9 summarises the comparison between the two truck sizes and the impact on the overall service meter unit (SMU) hours.

Table 9
Larger Capacity Mine Rock Truck Operating Hours Increase Cost Effects

Truck Size	Capital Cost (CDN\$ M)	Maximum Number of Mine Rock Trucks	Average Productivity (BCM/op h)	Operating Cost (CDN\$/SMU)
PFS Case -292t	\$5.3M	44	360	331
Optimized Case -363t	\$6.3M	37	430	358
% Difference	19%	-15%	20%	8%

The capital cost for the 363 tonne mine rock truck (Komatsu 980E or equivalent) is approximately \$6.3M versus \$5.4M for the 292 tonne mine rock truck (Komatsu 930E or equivalent) used in the PFS. The larger truck capacity increases the average productivity from 360 bank cubic meter (BCM) per operating hour to 430 BCM per operating hour. The higher productivity reduces the maximum number of haul trucks from 44 haul trucks down to 37 haul trucks. However, the total capital is the same for either fleet as the higher cost per truck for the larger trucks offsets the decrease in the number of units.

The increase in truck size also increases hourly operating costs. The operating cost for an 292t truck is approximately \$331 per hour; while the operating cost for the larger truck is approximately \$358 per hour. The 363 tonne mine rock truck can move approximately 24% more

tonnes per trip when compared to the 292 tonne mine rock truck. The hourly productivity for a given truck varies depending on the loading and travel times. Norwest compared the equipment travel times using TalPac haul time simulation software, while using the same representative haul profiles as were incorporated in the PFS. The simulation determined that there is no significant difference in haulage times between the two truck types. When comparing the loading time, it is assumed that the P&H4100 cable shovel will be used for both scenarios. The P&H4100 can load a 292 tonne haul truck with three passes and the 363 tonne haul truck with four passes. The advantage of the larger truck is the decrease in switching time between trucks which Norwest has estimated as providing a gain in the range of 1-2% in loading productivity.

Using larger mine rock trucks would have the following impact on the revised economics of the project:

- Reducing initial capital costs by \$8M including contingency.
- Improving the after-tax IRR by 1.1% to 23.7%.
- Improving the after-tax NPV₈ by \$63M to \$843M.

8 UPDATED ECONOMICS ANALYSIS

Based on the work completed as part of the PFS optimization, the updated economic analysis section is intended to provide an update to Section 13 of the April 2017 PFS. All other factors not specifically discussed in this optimization report were unchanged from the PFS evaluation. The following sub-sections summarize the cumulative effects on the Aries project's economics.

8.1 Discount Rate Sensitivity Analysis

A sensitivity analysis was completed on the discount rate as part of the optimization report. This was not completed as part of the PFS, however it provides insight into the Aries project economics. The discount rate was not changed from the PFS, and as illustrated in Table 10 the project's NPV is relatively sensitive to the discount rate. The range of discount rates analyzed covers those which are commonly used for other mining projects in western Canada (excluding consideration of a number of different design and risk factors).

Table 10
NPV Discount Rate Sensitivity

Discount Rate	Pre-tax NPV (\$M)	After tax NPV (\$M)
5%	\$2,289	\$1,414
6%	\$1,937	1,187
7%	\$1,646	\$1,000
8%	\$1,403	\$843
9%	\$1,199	\$711
10%	\$1,027	\$599

8.2 Results

The key changes made between during the PFS optimization study were the reducing the mine capital through the leasing of mine equipment, increasing the plant utilization by optimizing the mine fleet run-times through a revised mine plan, and evaluating larger mine rock trucks to look for savings in operating and capital costs. Each of these optimizations had an incremental improvement to the Aries economics, which resulted in the changes detailed below.

The optimization results of the Aries project post-PFS evaluation indicates the project could generate after-tax free cash flows of approximately \$3.6B over its life. The results of the updated economic analysis in terms of after and pre-tax net present value at an 8% discount rate (NPV₈), internal rate of return (IRR%), payback period, and after-tax cashflow, are shown in Table 11 for the optimization assumptions. The average operating and capital costs have also been presented in terms of capital costs (\$/CPT) and operating costs (\$/CPT). The conversions have been rounded to two decimal places.

Table 11
Economic Results

	PFS Results	Optimized PFS Results
Capital Cost Intensity (\$/CPT)	\$12.75	\$5.86
Operating Costs (\$/CPT)	\$87.98	\$91.16
Payback Period (years)	4.8	4
After-tax Cashflow (\$B)	\$3.29	\$3.60
Pre-tax NPV ₈ (\$M)	\$1,124	\$1,404
After-tax NPV ₈ (\$M)	\$641	\$843
After-tax Internal Rate of Return (%)	18.8	23.7

Figure 1 demonstrates the revised breakdown of the total cumulative operating costs over life of the project. This figure illustrates the major costs areas are the mining costs and rail and port costs which cover more than two thirds of the total costs over the project life.

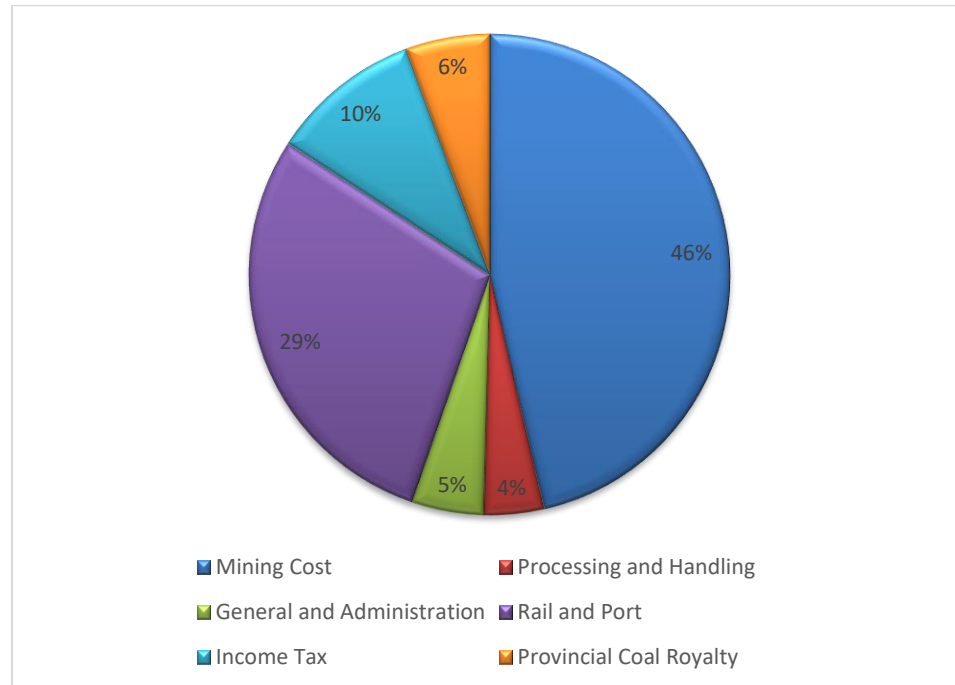


Figure 1 Total Cumulative Expenditures by Major Categories.

Table 12 and Figure 2 show the revised cashflow forecast based on the optimizations presented in this report, all in constant 2017 US dollars. There is also an addition \$6M in reclamation monitoring costs not shown in Table 12.

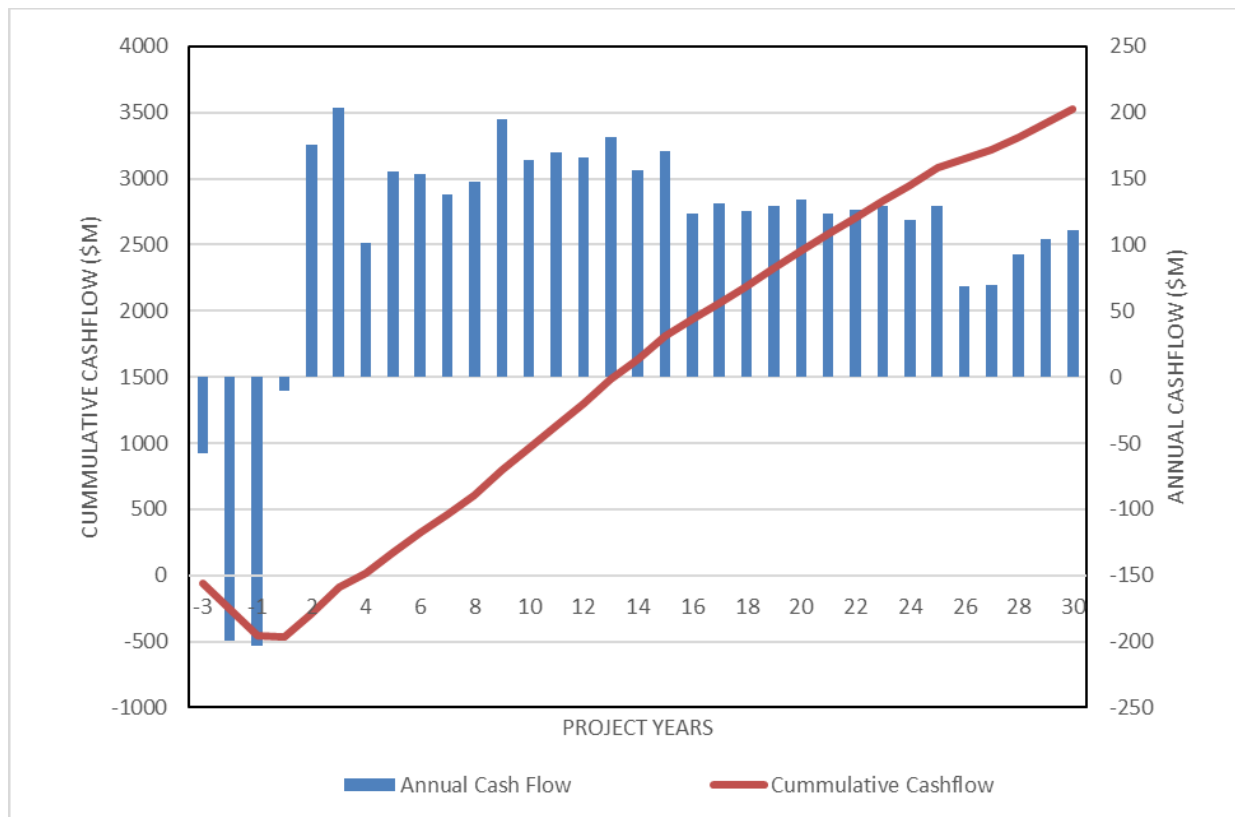


Figure 2 Cumulative and Annual Cashflows.

Table 12
Annual Cashflows (\$M)

	Year	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mine Rock	MBCM			9.3	33.8	58.7	61.4	87.7	88.1	89.5	85	88.9	86.4	84.6	83.1	88.7	89	86.2	80.4	85.8
ROM Coal	Mt			0.4	3.8	6.1	5.8	6.4	6.5	7.2	6.4	6.5	7.2	6.3	6.4	6.3	6.8	6.6	7.0	6.3
Clean Coal	Mt			0.3	2.5	3.8	4.0	3.9	4.2	4.6	4.0	4.1	4.7	4.4	4.5	4.4	4.7	4.7	4.9	4.2
Revenue	(\$ M)	\$ -	\$ -	\$ 39	\$ 352	\$ 552	\$ 571	\$ 560	\$ 603	\$ 660	\$ 576	\$ 588	\$ 673	\$ 625	\$ 641	\$ 637	\$ 680	\$ 671	\$ 706	\$ 602
Operating Costs	(\$ M)	\$ -	\$ 2	\$ 70	\$ 235	\$ 342	\$ 348	\$ 395	\$ 388	\$ 405	\$ 361	\$ 355	\$ 365	\$ 359	\$ 363	\$ 363	\$ 381	\$ 399	\$ 415	\$ 398
Capital Spend Annual	(\$ M)	\$ 57	\$ 197	\$ 172	\$ 124	\$ 30	\$ 4	\$ 20	\$ 2	\$ 11	\$ 1	\$ 2	\$ 2	\$ 6	\$ 7	\$ 9	\$ 10	\$ 20	\$ 18	\$ 9
Alberta Royalty Tax	(\$ M)	\$ -	\$ -	\$ 0	\$ 3	\$ 4	\$ 4	\$ 4	\$ 5	\$ 33	\$ 29	\$ 31	\$ 42	\$ 35	\$ 37	\$ 36	\$ 39	\$ 34	\$ 37	\$ 26
Federal and Provincial Corporate Tax	(\$ M)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11	\$ 39	\$ 53	\$ 56	\$ 47	\$ 52	\$ 70	\$ 61	\$ 63	\$ 62	\$ 68	\$ 62	\$ 65	\$ 45
Cash Flow	(\$ M)	\$ (57)	\$ (199)	\$ (203)	\$ (10)	\$ 176	\$ 204	\$ 102	\$ 155	\$ 154	\$ 138	\$ 148	\$ 195	\$ 164	\$ 170	\$ 166	\$ 181	\$ 156	\$ 171	\$ 124
Cumulative Cash Flow	(\$ M)	\$ (57)	\$ (257)	\$ (460)	\$ (470)	\$ (294)	\$ (90)	\$ 12	\$ 167	\$ 321	\$ 458	\$ 606	\$ 801	\$ 965	\$ 1,135	\$ 1,301	\$ 1,482	\$ 1,639	\$ 1,810	\$ 1,934

	Year	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Mine Rock	MBCM	85.8	85.8	85.8	85.8	89.8	89.8	89.8	89.8	89.8	76	76	76	76	76
ROM Coal	Mt	6.3	6.3	6.3	6.3	6.2	6.2	6.2	6.2	6.2	5.0	5.0	5.0	5.0	5.0
Clean Coal	Mt	4.2	4.2	4.2	4.2	4.0	4.0	4.0	4.0	4.0	3.3	3.3	3.3	3.3	3.3
Revenue	(\$ M)	\$ 602	\$ 602	\$ 602	\$ 602	\$ 580	\$ 580	\$ 580	\$ 580	\$ 580	\$ 480	\$ 480	\$ 480	\$ 480	\$ 480
Operating Costs	(\$ M)	\$ 390	\$ 396	\$ 388	\$ 381	\$ 372	\$ 371	\$ 374	\$ 377	\$ 375	\$ 355	\$ 359	\$ 335	\$ 316	\$ 306
Capital Spend Annual	(\$ M)	\$ 6	\$ 8	\$ 9	\$ 8	\$ 12	\$ 9	\$ 4	\$ 13	\$ 3	\$ 15	\$ 10	\$ 1	\$ 1	\$ 1
Alberta Royalty Tax	(\$ M)	\$ 28	\$ 27	\$ 28	\$ 29	\$ 26	\$ 27	\$ 27	\$ 26	\$ 27	\$ 15	\$ 15	\$ 19	\$ 22	\$ 23
Federal and Provincial Corporate Tax	(\$ M)	\$ 47	\$ 46	\$ 48	\$ 49	\$ 46	\$ 47	\$ 46	\$ 45	\$ 46	\$ 28	\$ 26	\$ 32	\$ 36	\$ 39
Cash Flow	(\$ M)	\$ 131	\$ 126	\$ 129	\$ 135	\$ 123	\$ 126	\$ 129	\$ 119	\$ 129	\$ 68	\$ 70	\$ 93	\$ 105	\$ 111
Cumulative Cash Flow	(\$ M)	\$ 2,065	\$ 2,190	\$ 2,320	\$ 2,454	\$ 2,577	\$ 2,703	\$ 2,832	\$ 2,951	\$ 3,080	\$ 3,148	\$ 3,218	\$ 3,311	\$ 3,416	\$ 3,527

Pre-tax IRR (%)	28.7%
Pre-tax NPV (\$M)	\$ 1,404
After-tax IRR (%)	23.7%
After-tax NPV (\$M)	\$ 843

9 CLOSURE

This optimization report has been prepared for Ram River Coal Corp. to provide them with a review of PFS optimizations and potential impact to the economics for their Aries Project. Norwest has developed the report based on our experience and professional judgment with reliance on third party information as noted in the report. Norwest specifically disclaims any responsibility for losses or damages incurred through the use of our work for a purpose other than as described in the report.

Yours sincerely,

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