OPERATIONAL IMPROVEMENT CASE STUDY

AngloAmerican

MEYVN™

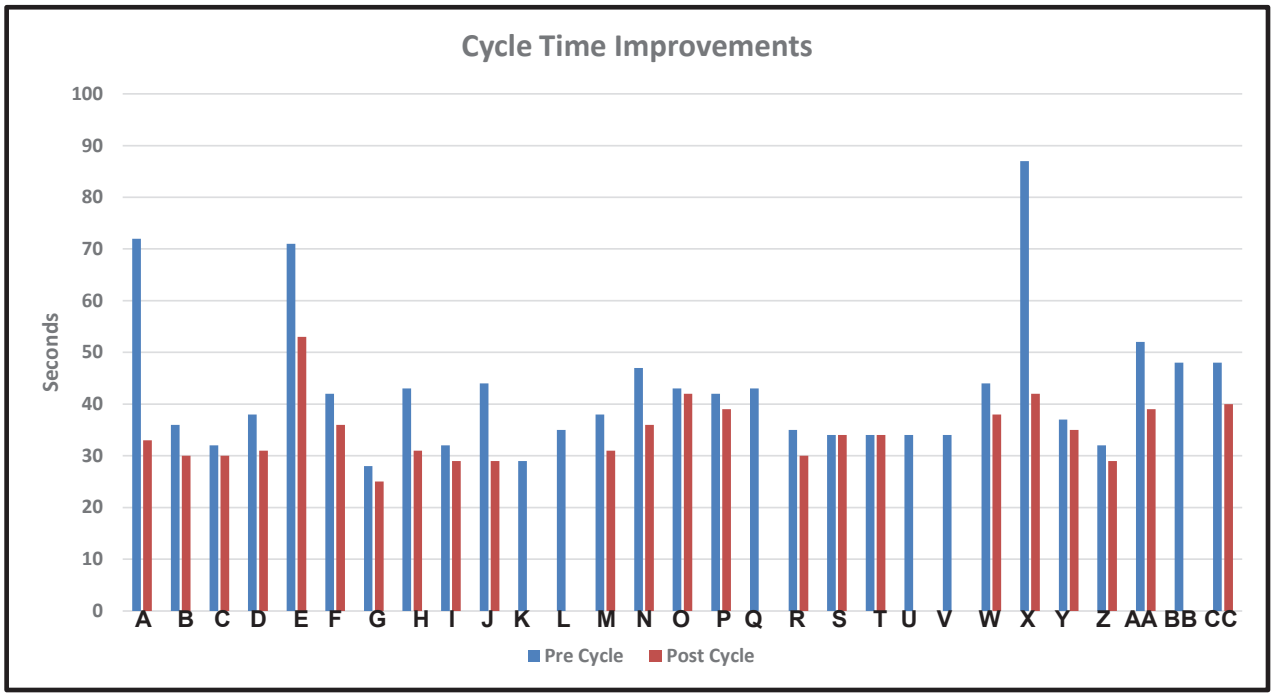
Site Improvement Case Study

This case study outlines the progress made by Meyvn Global with the operators and supervisors of the Pre-strip Section and North mine section at an Anglo American mine in 2014. Production data is based on dispatch data supplied by the mine specifically related to the P&H 2800 and 4100 Fleets, Liebherr 996 and 9800, Komatsu PC8000 and Letourneau 2350.

Evaluation of Operator Performance

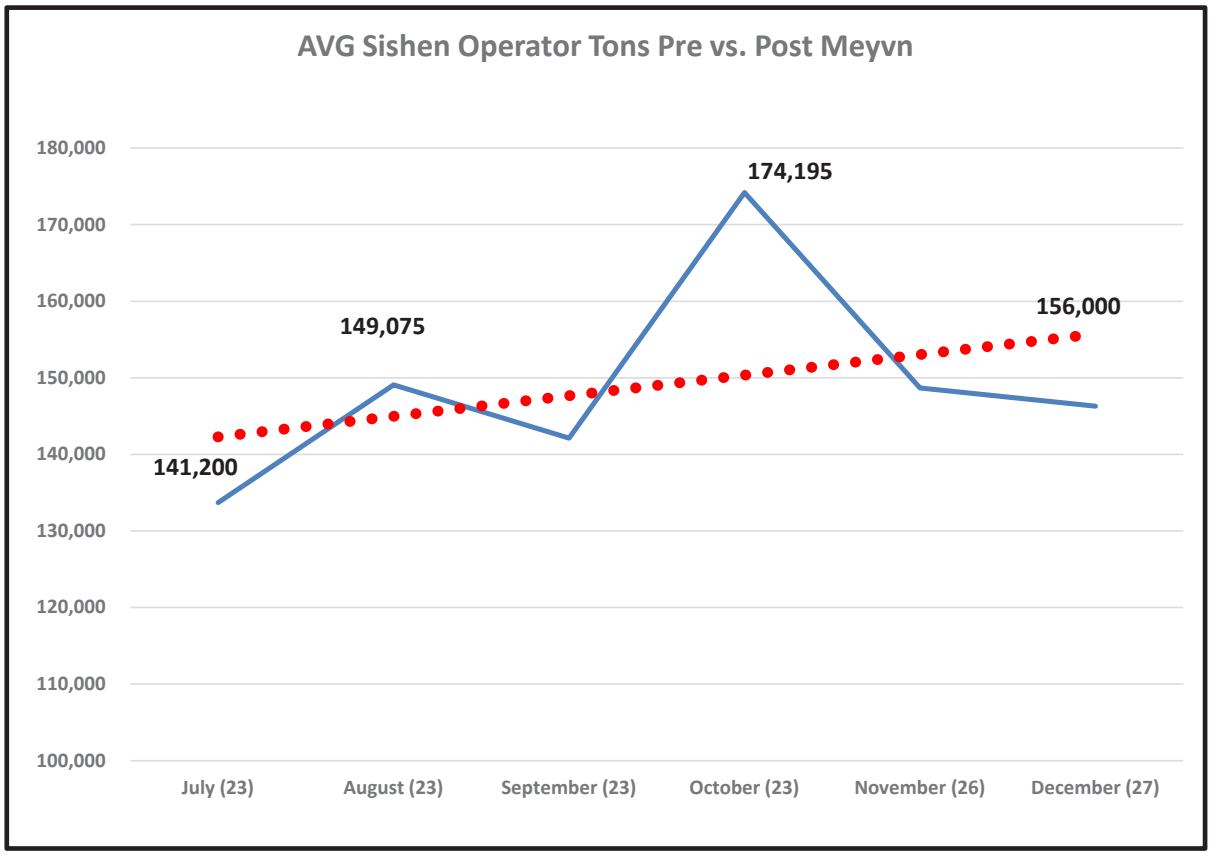
- **29 operators were trained by Meyvn:** Below are the performance graphs, followed by individual operator quotes. Further information can be found in the individual operator folders.

- **Cycle Time Improvements:** These cycle times represent hand-calculated pre and post training sessions. The target was 34 seconds. Many of the operators made significant improvements with an overall cycle time reduction of 19%

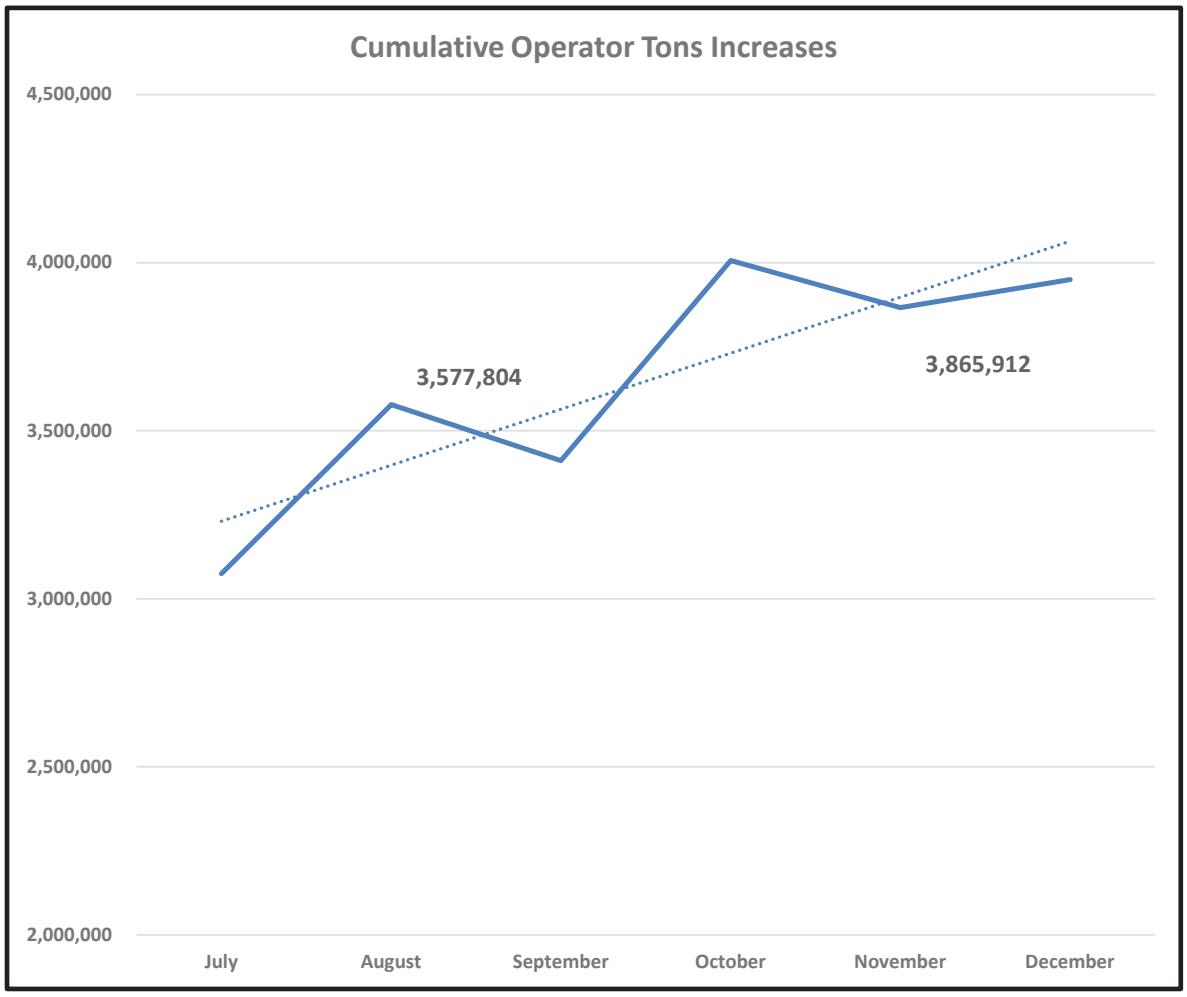


- **Tonnage Improvements:** Overall tonnage improvements for the operators during our training session increased by 12%. Most of the training was completed in early November, as there was a need to move to Pre-strip. The data set is from August – December 2014.

- **Average Tonnage Improvements:** This graph shows the overall progression of the coached employees through the training and after being on their own. Beginning with the training in August and the peak in October before holiday break began there was a 14% increase during the time period. These are the average month over month increases in their tons. The total tonnage for these operators was divided by the number of operators in a given month.



- **Cumulative Tonnage Improvements:** This graph shows what the cumulative effect has on tons from August to November. While the graphs above shows individual monthly tonnage gains the graph below shows what those tonnage gains are over the same period. This is an overall of 7%. (See graph on following page)



- **Overall Operator Improvements:** This spreadsheet outlines the cycle time improvements as well as the increase in tons. Green indicates a positive change and red indicates a negative or an extreme negative change. This negative change is typically based on schedule; shovel priority, and other factors. (See graph on following page)

Name	Pre Cycle	Post Cycle	% Change	August Pre Tons	Dec Post Tons	% Change
Operator A	72	33	54%	801,692.00	801,692.00	0%
Operator B	36	30	17%	351,021.00	354,954.00	1%
Operator C	32	30	6%	154,867.00	515,845.00	70%
Operator D	38	31	18%	58,586.00	91,771.00	36%
Operator E	71	53	25%	115,746.00	475,582.00	76%
Operator F	42	36	14%	334,110.00	334,110.00	0%
Operator G	28	25	11%	132,793.00	-	
Operator H	43	31	28%	296,901.00	412,059.00	28%
Operator I	32	29	9%	493,035.00	116,614.00	
Operator J	44	29	34%	533,882.00	504,961.00	-6%
Operator K	29			715,941.00	168,362.00	
Operator L	35			215,626.00	330,649.00	35%
Operator M	38	31	18%	69,614.00	98,657.00	29%
Operator N	47	36	23%	155,489.00	45,313.00	
Operator O	43	42	2%	66,625.00	98,657.00	32%
Operator P	42	39	7%	97,583.00	-	
Operator Q	43			75,007.00	355,209.00	79%
Operator R	35	30	14%	181,384.00	307,288.00	41%
Operator S	34	34	0%	587,853.00	528,795.00	-11%
Operator T	34	34	0%	321,216.00	48,345.00	
Operator U	34			552,574.00	606,816.00	9%
Operator V	34			382,270.00	190,533.00	
Operator W	44	38	14%	-	186,018.00	100%
Operator X	87	42	52%	3,141.00	98,657.00	97%
Operator Y	37	35	5%	32,328.00	10,676.00	
Operator Z	32	29	9%	212,508.00	49,513.00	-329%
Operator AA	52	39	25%	279,838.00	198,401.00	-41%
Operator BB	48			69,614.00	98,657.00	29%
Operator CC	48	40	17%	344,215.00	275,212.00	-25%
	AVG Cycle Time Improvement		19%		AVG Improvement	12%

Supervisor Training:

- Population Load area standards for work orders
- Haul road maintenance standards for haul area work orders
- Provide scheduled and non-scheduled work for call center and follow up of completion
- Job card/ Daily duty cards/instructions for Foreman, pit worker, secondary operators
- Foreman action list (pre-BPF)
- Supervisor mentoring in the mine
- Mentoring Foreman for their Overseer interview and presentation
- Worked with overseers to complete projects
- Coordination with supervisor regarding training needs or shovel coverage altering Meyvn schedules

Meyvn Performance

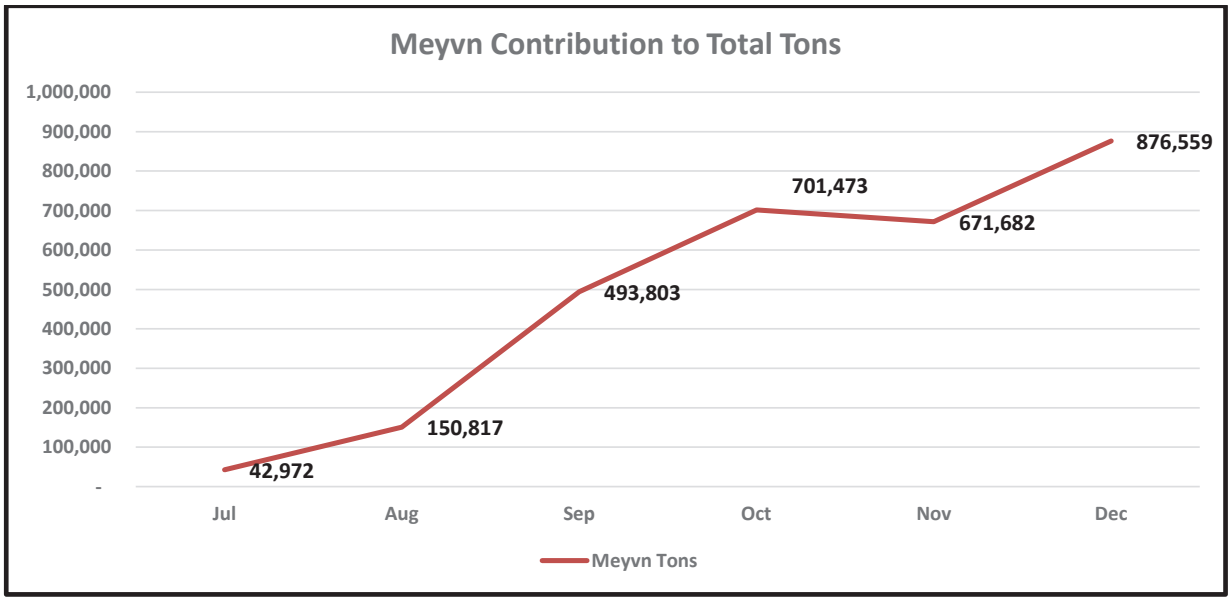
The following information is comparing the whole fleet of operators of the P&H 2800 and 4100 Fleets, Liebherr 996 and 9800, Komatsu PC8000 and Letourneau 2350 against Meyvn Operators.

On a number of occasions, Meyvn specialists were required to operate equipment on their own, which was outside of the training scope of the project. This was largely due to:

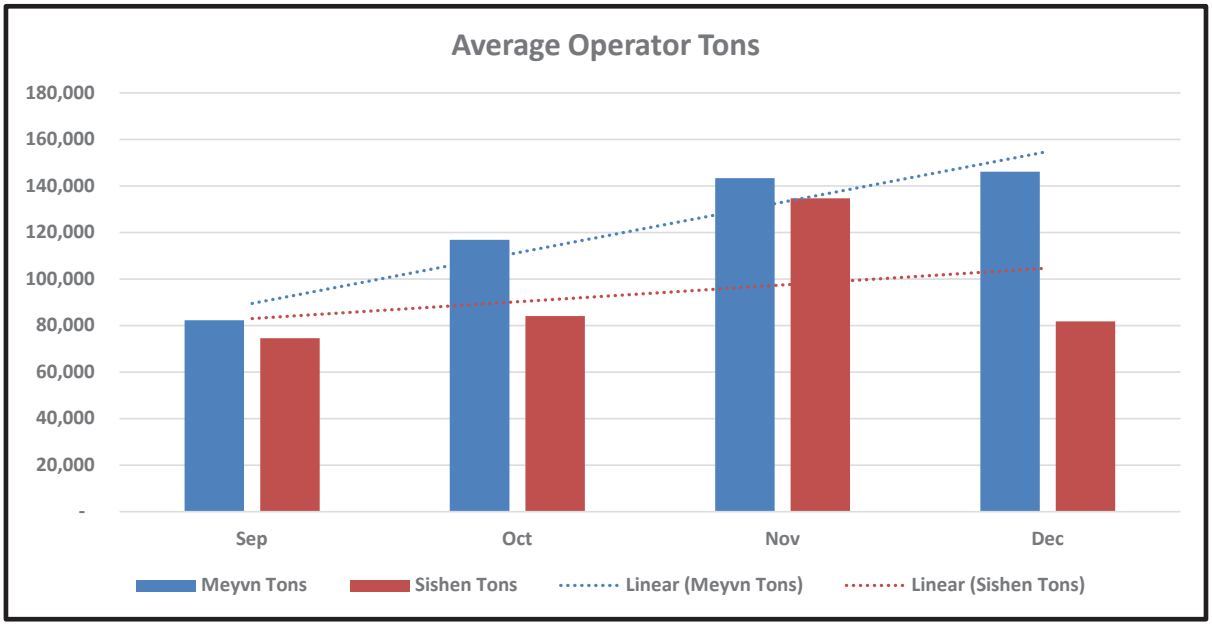
- Equipment required to operate in difficult conditions
- Requested to prove the maximum capability of certain machines in the specific mine environment - setting benchmarks.
- Unmanned equipment when the mines operators were not available to operate the equipment.
- Operate equipment while the mines own operators where undergoing classroom or refresher training - opportunity to utilize equipment more effectively than the plan."

Meyvn Stats

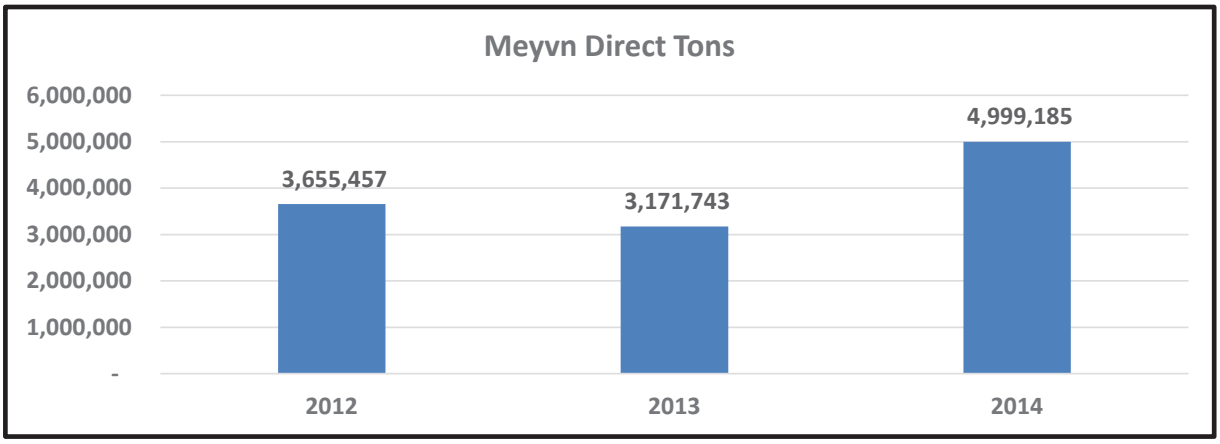
- During 2014 Meyvn Operator's directly contributed 5,000,000 tons in 7 months
- Meyvn Operator Matt Harris produced 473K tons or 4% of production in Dec 2014
- Meyvn operators worked 260 shifts through dispatch, or the equivalent of 3 % of the year
- Equipment Operation Shifts
  - P&H 2800 – 13 Shifts
  - P&H 4100 – 122 Shifts
  - Liebherr 996 – 23Shifts
  - Liebherr 9800 – 66 Shifts
  - Komatsu PC8000 – 18 Shifts
  - Letourneau 2350 – 18 Shifts
- **Meyvn Direct Contributed Tons:** These are the tons directly logged by Meyvn operators from January to December. Meyvn worked approximately 19 shifts per month from Sept – Dec. (See graph on following page)



- **Meyvn average tons vs Anglo Operators:** This graph shows how the average monthly tons of a Meyvn operator in relation to the average Anglo operators. On average we produce 28% more tons per month. This equates to an overall efficiency of over 40%. The average Sishen operator produces 10K tons per day, while a Meyvn operator produces 18K tons per day.



- **Meyvn Contribution to total production:** Since our initial contract in 2012 to current we have directly contributed 11M tons to site, which equates to 4% of overall production for the same time period. In 2012 we started by commissioning 4100 shovels with a small emphasis in skills transfer, later in 2013 our focus was on skills transfer on the 996's. This year's focus has been training, supervision support, and production. (See graph on following page)



Continued Work To Be Done:

- Improving Roads Conditions
- Double Side Loading
- Hydraulic Shovel Training
- Create Detailed Work Instructions
- Remove No Entry Sign & Establish New Policy
- Conduct Pit Inspections
- Train Secondary Equipment Operators
- Make Shift Change Improvements
- Digging Quality Reporting
- 1 Month Pre-strip Dispatch Test
- Continued Foremen Training
- Establish a Dedicated Cable Crew

Successes:

- Secondary equipment operator coaching
- Risk based training review for accuracy (Mining equipment)
- Training information correction and clarification (new 475-5 dozers)
- Reviewed and created Planned Task Observation x6
- Reviewed and repaired for clarification Work Instructions x6
- Identified and Recommended training discrepancies in the mine
- Built road and cable ramps and other projects as needed
- Operated during shift changes repairing roads, floors, cleaning shovel floors and operating shovel
- Covered equipment operations during a lack of operators or skill set for task
- Advisor for equipment needs or application
- Created drainage in North Mine
- Recommend route improvements to reduce tire and component damage
- Was active member of Pre-strip committee to increase loads from Pre strip, A&I 100
- Middle person between Joy Global and Mine for understanding and using Prevail, communication shovel performance to help Joy Global know of problems and the mine know operator performance
- Presentations for training day
- Manual for road construction and maintenance
- Safety Audits with the safety department

For more information on AngloAmerican Kumba's Sishen mine, please visit the

Company's Website: www.angloamericankumba.com/ob_sishen.php

For more information about Meyvn Global visit

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