

**MARKING GUIDE
BOLT BLADES LTD.
ASSESSMENT OPPORTUNITIES**

Assessment Opportunity #1

The candidate is demonstrating competence in Management Accounting

Competencies

3.2.3 Computes, analyzes, or assesses implications of variances

Direct cost variances – Favourable (Unfavourable) – for Part No. 1 production (in thousands of dollars)						
	2019	2020	2021			
	Variance total	Variance total	Q1	Q2	Q3	Q4
Material price variance	\$ 5	\$ 29	\$ 75	(\$ 25)	(\$ 60)	\$ 50
Material quantity variance	(\$ 8)	(\$110)	(\$120)	(\$480)	(\$ 60)	(\$480)
Labour rate variance	\$20	(\$ 1)	(\$ 20)	(\$ 25)	(\$ 30)	(\$ 40)
Labour efficiency variance	\$14	(\$ 5)	(\$ 60)	(\$110)	(\$ 80)	(\$ 90)
Total variances from standard costs	\$31	(\$ 87)	(\$125)	(\$640)	(\$230)	(\$560)

Note: The above table is from the case (Appendix I).

Material price variance	The material price variances do not seem to indicate a problem. This means that the materials were purchased at an expected price and that the quality of materials purchased was of consistent quality. Therefore, it is not likely that the breakage of the blades is due to the material qualities.
Material quantity variance	Material quantity variances have been negative since 2019. The unfavourable material quantity variances are the biggest reason for the overall negative variances. This means more materials were used than planned because of the wastage during production. The production manager mentioned that the blades break because of Machine 1, and the variance confirms this. BBL should focus on reducing the materials wasted during the production process.
Labour rate variance	The labour rate variances have been negative since 2020 and have worsened significantly since then. This means more expensive technicians have been used in the production than expected or planned. It was mentioned that highly skilled technicians were needed to be used in the production process. This may have caused the unfavourable variance in labour rate.
Labour Efficiency variance	The labour efficiency variances have been unfavourable since 2020 and have continued to worsen. This means that the labour took longer than expected or planned. As mentioned at the meeting, the highly experienced technicians had little success in improving the hours spent in production. The negative variances confirm this.
Total Variances from standard costs	Overall, there has been a significant unfavourable variance since Q2 2021. Direct material quantity and labour efficiency variances were the most significant variances. This would have negatively affected the company's overall profit.

Assessment Opportunity #2

The candidate is demonstrating competence in Management Accounting

Competencies

3.2.3 Computes, analyzes, or assesses implications of variances

Extra-thin blanks:

Material and labour variances:				Variance (in thousands of dollars)
	SP	AQ	AP × AQ	
Material price variance	\$ 1.05	2,010,000	\$ 2,231,100	\$ (121)
	SP	AQ	SQ	
Material quantity variance	\$ 1.05	1,960,200	1,980,000	\$ 21
	SP	AQ	AP × AQ	
Labour rate variance	\$ 15.00	846,450	\$ 12,709,447	\$ (13)
	SP	AQ	SQ	
Labour efficiency variance	\$ 15.00	846,450	855,000	\$ 128
				\$ 15

Detailed calculations:

Material price variance: $(SP - AP) \times AQ = (SP \times AQ) - (AP \times AQ)$

	SP	AQ	SP × AQ	AC	Variance	
Material price variance	\$1.05	2,010,000	\$2,110,500	\$2,231,100	(\$120,600)	U

Material quantity variance: $(SQ - AQ) \times SP$

	SR	AQ	SQ	AQ	SQ - AQ	SP	Variance	
Material quantity variance	0.22	9,000,000	1,980,000	1,960,200	19,800	\$1.05	\$20,790	F

Labour rate variance: $(SP - AP) \times AQ = (SP \times AQ) - (AP \times AQ)$

	SP	AQ	SP × AQ	AC	Variance	
Labour rate variance	\$15.00	846,450	\$12,696,750	\$12,709,447	(\$12,697)	U

Labour efficiency variance: $(SQ - AQ) \times SP$

	SR	AQ	SQ	AQ	SQ - AQ	SP	Variance	
Labour efficiency variance	0.0950	9,000,000	855,000	846,450	8,550	\$15.00	\$128,250	F

While the cost of the material is substantially higher than standard, the material waste was reduced substantially. The overall variance is favourable and is much better than during any quarter of the prior year. If the quality issue can be addressed, this looks like a promising solution (see recommendations).

Assessment Opportunity # 3

The candidate is demonstrating competence in Management Accounting

Competencies**3.3.2 Evaluates and applies cost management techniques appropriate for specific costing decisions**

Sublease facility and equipment per year	\$	1,800,000
Technician salary (5 technicians)		225,000
Production manager salary		80,000
DM/DL (\$ 1.656 × 35,000,000)	\$	57,960,000
Cost saving total per year	\$	<u>60,065,000</u>
Purchase price from ACE		(59,500,000)
Severance payment		<u>(31,250)</u>
Total saving from outsourcing		<u><u>\$ 533, 750</u></u>

The outsourcing option appears to be a profitable option for BBL. The option will save the company \$565,000 annually. Qualitative factors related to this option are discussed below (AO#5).

Assessment Opportunity #4*The candidate is demonstrating competence in Finance***Competencies****5.3.1 Develops or evaluates capital budgeting processes and decisions****i) net present value**

A capital budgeting analysis for the potential new machine is as follows:

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Cost of new machine	(2,800,000)								
Set-up costs	(30,000)								
Reduced maintenance		525,000	525,000	525,000	525,000	525,000	525,000	525,000	525,000
Reduced repair costs		25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Salvage value – new machine									50,000
Selling price – Machine 1	70,000								
Total cash flows	(2,760,000)	550,000	550,000	550,000	550,000	550,000	550,000	550,000	600,000
Present value factor @ 12%	1.000	0.893	0.797	0.712	0.636	0.567	0.507	0.452	0.404
Annual present value	(2,760,000)	491,071	438,457	391,479	349,535	312,085	278,647	278,792	242,330
Total Net Present Value	(7,604)								

The above analysis indicates that the net present value (NPV) is negative and therefore, from a quantitative perspective the machine should not be purchased. However, the strategic aspects of this alternative and other potential solutions should also be considered. Qualitative factors related to this option are discussed below (AO #5).

Assessment Opportunity #5

The candidate is demonstrating competence in Strategy and Governance

Competencies**2.5.1 Designs an effective risk management program and evaluates its impact on shareholder value****Extra-thin blanks:**

Pros:

- 1) The total variances will be reduced – the material quantity variances in particular are significantly lower.
- 2) This provides a quick solution to fix the issue – it does not require capital investment or training.

Cons:

- 1) This might not be a good option in the long term – Part No. 101 is an essential part of all of BBL's finished products and this option might increase returns of the finished products.
- 2) It is uncertain whether the extra-thin blades meet safety requirements.

ACE outsourcing option:

Pros:

- 1) The quality of ACE's blades is similar to BBL's Part No. 101.
- 2) The variances are no longer a concern because this option resolves the issue with Machine 1.
- 3) Outsourcing is the financially better option – BBL will save \$565,000 annually.

Cons:

- 1) Although ACE is building its reputation, it is fairly new and there is uncertainty around its reliability – while the company may produce a good quality product now as it enters the market, it is uncertain whether the quality will remain the same.
- 2) BBL has no prior relationship with ACE. There is uncertainty around the relationship and with whether ACE will continue to supply BBL – if ACE gets more orders from bigger suppliers, it might discontinue its contract with BBL. Because Part No. 101 is used in every finished product of BBL, this is a significant risk.
- 3) Outsourcing might result in delay of product deliveries.

New machine:

Pros:

- 1) This will provide a good long-term solution to the issues with Machine 1 and the unfavourable variances.
- 2) This machine uses the best technology and will produce a better-quality Part No. 101.
- 3) This option will resolve the issue with production deadlines.

Cons:

- 1) The NPV is negative, indicating that this is not a good investment.
- 2) Employees will take time to learn how to use this machine – there could be a steep learning curve and loss from training employees.

Overall conclusion

At this time, the best course for BBL is the outsourcing option, which will save the company \$565,000 annually. However, there are some risks and uncertainties associated with ACE, such as reliability of delivery and the longevity of the relationship. Therefore, it would be a good idea for BBL to have a contract with ACE, and to search for a less expensive but reasonably good machine that can replace Machine 1. The machine proposed by the production manager at the meeting is not a good investment, as it shows negative NPV results. Therefore, BBL should not purchase this machine.

I do not recommend using the extra-thin blades. Although it would reduce the direct cost variances, it does not eliminate or improve the variances. Also, there are significant risks that the final product will be defective, which might hurt the company's reputation in the long term.