

(CMA adapted) Malacca Dinners Inc. (IDI), makes microwaveable frozen foods. The company is considering purchasing an automated materials-movement system (AMMS) for its Western Plant. Bill Rolland, IDI's chief financial officer, has asked Lealand Forrest, assistant controller, to prepare a net present-value analysis for the proposal.

Rolland was instrumental in convincing the board of directors to open Western Plant. Now, unless significant improvements in cost control and production efficiency are achieved, the Western Plant may be sold. Rolland is anxious to have the Western Plant continue to operate to maintain his credibility with the board and also to help Western's production manager, a long time friend of Rolland.

The AMMS would replace a number of forklift trucks, eliminate the need for a number of materials handlers, and increase the output capacity of the Western Plant. Rolland has given Forrest the following information (Table 1) regarding the AMMS investment for the net present-value analysis.

IDI uses straight-line depreciation for all its equipment assuming a zero terminal disposal price. The forklift trucks have a net book value of \$480,000 with a remaining useful life of 8 years and a zero terminal disposal price. If IDI purchases AMMS now, it can sell the forklift trucks for \$100,000. To make the 10-year project life of AMMS comparable to that of the forklift alternative, Forrest estimates that if IDI does not buy the AMMS, the company will lease new forklift trucks for the Western Plant for years 9 and 10 at a cost of \$80,000 each year.

IDI has a 40% tax rate and requires a 12% after-tax of return on this project. Assume that tax effects and cash flows from equipment acquisition and disposal occur at the time of the transaction and that the tax effects and cash flows from operations occur at the end of each year.

Rolland was pleased with Forrest's initial analysis. After the initial analysis was completed, Forrest discovered that the estimated terminal disposal price of the AMMS should be \$100,000, not \$850,000, and that the useful life of the system was expected to be 8 years, not 10 years. Forrest prepared a revised, second analysis based on this new information. On seeing the second analysis, Rolland told Forrest to discard the revised analysis and not to discuss it with anyone at IDI or with the board of directors.



**Table 1**

Projected useful life	10 years
Purchased/installation	\$4,400,000
Increased working capital needed	\$1,000,000
Increased annual operating costs (excluding depreciation) over current costs	\$ 200,000
Reduction in annual manufacturing costs over current costs	\$ 400,000
Reduction in annual maintenance costs over current costs	\$ 300,000
Increase in cash flow from higher sales revenue	\$ 700,000
Estimated disposal price at end of useful life	\$ 850,000
Estimated recovery of working capital at end of useful life	\$1,000,000

**Required**

- 1 What is the net present value of the decision to replace forklifts with the AMMS based on the original estimates Rolland gave to Forrest?
- 2 Using net present-value analysis, determine whether MDI should purchase and install the AMMS on the basis of the revised estimates that Forrest obtained.
- 3 Explain how Forrest, a management accountant, should evaluate Rolland's directives to conceal the revised analysis.
- 4 Identify the specific steps Forrest should take to resolve this situation.