



Lorman Lumber Co.

What “Wood” You Do?

By Marty Stuebs, CMA, CFM, CPA, CIA

The IMA® Committee on Ethics and Raef Lawson, Ph.D., CMA, CFA, CFP, CPA, VP of Research and Professor-in-Residence, are proud to announce that Marty Stuebs, CMA, CFM, CPA, CIA, has won the Best Case Award in the fourth annual Carl Menconi Case Writing Competition for his case, “Lorman Lumber Co.: What ‘Wood’ You Do?” The competition is named in memory of Carl Menconi, who held leadership positions in IMA for many years and served as chair of the IMA Committee on Ethics. The objective of the competition is to develop and distribute business ethics cases with specific application to management accounting and finance issues and that use the *IMA Statement of Ethical Professional Practice* as a reference or guidance tool. The winning case and teaching notes are available for use in a classroom or business setting.

IT was late. Ben Watson, a young managerial accountant and assistant production manager for Lorman Lumber Co.’s Yamica sawmill, slowly closed his eyes in an attempt to enjoy the solace of a momentary escape. The Yamica sawmill had been the perfect place to start his career and family six years ago. The sawmill was profitable and had plenty of challenges and opportunities for advancement, while Oregon’s rustic, natural beauty in the quaint, quiet Yamica community provided a good environment to raise a family. Ben fondly recalled those earlier times as he closed his eyes.

He was working on an analysis of a proposed capital investment to recapture and recycle wastewater by refitting the Yamica sawmill with a “closed cycle” system. He recalled how simple capital investment analyses were in his managerial accounting class. Now he was discovering, however, that the task wasn’t really that easy.

The importance of this investment and the magnitude of its consequences increased the responses and emotions from interested parties and created a stressful environment for Ben. For one thing, the outcomes from the investment were uncertain. Although collected with

meticulous care, the data Ben had painstakingly gathered was composed only of educated estimates, leaving him with an uneasy feeling.

Second, the magnitude of the investment affected a lot of people, compounding the uneasy feeling. The “closed cycle” system would protect Yamica’s community and environment from possible harm from wastewater emissions. Ben’s thoughts turned to his wife’s best friend, Janet, who had recently suffered a miscarriage. Did Lorman’s wastewater emissions play any role in this tragic outcome? Although the investment could potentially benefit the environment and health of the Yamica community, it would certainly adversely affect a number of parties economically in the short (and possibly long) run.

Ben was plagued by questions as he reluctantly opened his eyes: How should I handle the ambiguity of uncertain estimates in my analysis? How should I handle the pressures from affected parties? What about the health and economic well-being of my wife and small children?

Lorman Lumber Co.

Lorman Lumber Co. is a publicly traded company whose shares are widely held. The Yamica plant is one of the company’s largest. Located in rural Oregon on the Mohegan River, approximately five miles upstream from and east of the town of Yamica, the plant processes and treats wood. It has a number of buildings, including the sawmill, a maintenance shop, a laboratory, administrative buildings, and 10 above-ground storage tanks. Washington Pacific Railroad operates a line through the site and hauls treated and untreated wood products twice a day.

The sawmill began operating in 1947, shortly after World War II. Operations include peeling, milling, planing, and chipping raw wood to produce lumber products. The company paints the ends of the finished lumber products to prevent moisture loss. Waste and debris from operations

are deposited in an area east of the chipping mill.

In 1968, the company began using preservatives to condition and pressure-treat wood products. Wood-preserving chemicals include petroleum-based creosote and pentachlorophenol (PCP) solutions. Plywood, wood studs, wood boards, treated lumber, and wood chips are among the wood products treated.

Surface water from drainage ditches surrounding the facility drain into the Mohegan River. Yamica’s municipal water intake is located approximately two miles downstream from the Lorman facility. The Mohegan River is also used for recreational fishing and has sensitive fisheries, including steelhead and salmon.

Lorman is a firm with a record of reporting good profits and has a policy of paying generous performance-based bonuses to executives like Ben Watson. The monetary rewards give executives strong incentives to maintain plant operations and performance. While somewhat outdated, the plant is still reasonably efficient and profitable. It wasn’t designed with environmental protection in mind, and the surface water from the drainage ditches is screened only to remove the level of contaminants required by the Environmental Protection Agency (EPA). Other industrial plants are located upstream from the Lorman plant.

The town of Yamica is largely economically dependent on the mill. It’s home to many of the plant’s employees and executives, including Ben Watson, his wife Carin, and their two children, ages one and four. As a result, Ben is sensitive to environmental issues and makes a point of keeping up on the latest sawmill technology.

The Issue

Ben monitors activity at the plant’s laboratory. Recently an employee conducted tests on water quality in the Mohegan River immediately downstream from the plant. The samples were taken across the entire width of the

Table 1: Lumber Unit Cost

LUMBER PRODUCT	PRICE/UNIT	UNITS	TOTAL PRICE
Plywood	\$0.75/square foot	8 square feet	\$ 6.00
Wood Studs	\$2/stud	5 studs	10.00
Wood Boards	\$3/board	5 boards	15.00
Treated Lumber	\$6/board	3 boards	18.00
Wood Chips	\$1/pound	1 pound	1.00
Total Cost per Lumber Unit			\$50.00

river. Those nearest the plant's drainage ditches showed high readings of industrial chemicals, including creosote and PCP solutions. Farther away from the plant, and on the opposite shore of the river, the water showed only small trace amounts of these chemicals.

The employee also discovered that these elevated readings of industrial chemicals weren't included in monthly reports to management. Ben was concerned and sent a report to Jeff Marcum, the CEO and president. Ben later met with Jeff to discuss the report.

"Thanks for meeting with me, Jeff. I'm interested in hearing what you think after reading the report I prepared," Ben began.

"Yes, Ben, thank you for your diligent work and concern. This is an important and complex issue," Jeff replied.

"Right," Ben agreed, "Several local doctors have voiced concerns about a marked increase in reported miscarriages, birth defects, and health disorders. Recent data suggests a possible link between these health problems and creosote and PCP chemicals but no definite proof. Research into the effects of these chemicals is ongoing.

"From a regulatory perspective, the EPA is considering internal staff proposals for additional research to respond to the recent concerns raised about creosote and PCP solutions. It's too early to tell when, if ever, the EPA will enact new regulations. I feel the ground rules could tighten as they did with previous chemicals. Lorman should get out in front of regulatory change.

"While I recommend additional studies into public health and ecological effects, I also propose immediate action. I think we should consider investing in a new 'closed cycle' production technology that recaptures and recycles plant wastewater. This technology protects the environment and reclaims waste material that can be resold to chemical producers. It's already gaining use in Europe."

"Your points are well made, Ben, and you're a proven and valued employee. I appreciate your concern for the welfare of our company and our community. I share your concern. But the estimated cost of refitting the plant is substantial and far reaching. In addition to the sizeable monetary investment, the plant would have to be closed down for a year and operate at reduced capacity for another year during the changeover. Employees would be laid off. The Yamica economy would take a sizeable hit. Company and shareholder profitability would certainly be affected.

"I think we just need more information before moving forward. Can you run the numbers? Prepare a capital investment analysis of the proposed 'closed cycle' system

investment. I'll present your analysis to management and the board of directors. How does that sound, Ben?"

"Fair enough, Jeff. I'll get to work on that."

The Numbers

Ben planned on preparing a neutral, objective analysis of facts. He gathered and estimated additional accounting information related to refitting the plant. Without refitting the plant, Ben estimates that Lorman can sell 10 million "lumber units" per year at \$50 per unit (see Table 1). The \$50 lumber unit represents a hypothetical "package" of all Lorman lumber products sold to customers based on the historical proportion of past lumber product sales. The current variable costs are \$10 for each lumber unit, and the plant's current fixed costs are \$60 million per year.

If the plant is retooled, the initial upfront investment costs are likely to be around \$65 million. The investment cost to refit the plant could optimistically drop to around \$55 million if the project runs according to plan. Cost overruns could drive the cost of refitting the plant up to a pessimistic estimate of \$80 million. Lorman depreciates such capital investments over 20 years using the straight-line method for tax purposes. If refitted, the factory will be shut down for one year. There will be no production for one year, and reduced capacity of eight million lumber units in the following year (i.e., Year 2). Beginning in Year 3, a realistic estimate shows that capacity could be increased to around 12 million lumber units per year because of increased capacity and efficiencies from the new system. The sales price will remain \$50 per lumber unit, but variable costs could decrease to a realistic estimate of \$6 per lumber unit, and fixed costs could decrease to a realistic estimate of \$40 million per year as a result of refitting the plant. Beginning in Year 2, the operational "closed cycle" system will be able to reclaim 100,000 gallons of chemical waste material, which can be sold to chemical producers for \$30 per gallon.

Assume that the corporate tax rate is 40% and that Lorman receives immediate tax benefits from tax losses. Lorman uses a hurdle (discount) rate of 10% and evaluates capital investments of this nature over a five-year time horizon when computing a net present value (NPV) analysis (i.e., Lorman requires capital investments to have a positive NPV within five years). Lorman also uses the payback period as a benchmark for capital investments and requires accepted capital investments to have a payback period within five years. The numerical information is summarized in Table 2.

Table 2: Lorman Lumber Co. Plant Refit Analysis Data**INITIAL INVESTMENT (TIME = 0): NEW TECHNOLOGY TO REFIT PLANT**

Pessimistic	\$80 million
Realistic	\$65 million
Optimistic	\$55 million

DEPRECIATION:

Depreciable life of investment assets: 20 years, straight-line depreciation (for tax purposes)

OPERATIONS INFORMATION:

Original Plant		Refitted Plant	
COSTS:		COSTS:	
Sales price per lumber unit	\$50	Sales price per lumber unit	\$50
Variable costs per lumber unit	\$10	Variable costs per lumber unit	
		Pessimistic	\$7
		Realistic	\$6
		Optimistic	\$5
Fixed costs	\$60 million	Fixed costs	
		Pessimistic	\$50 million
		Realistic	\$40 million
		Optimistic	\$30 million
QUANTITY (LUMBER UNITS):		QUANTITY (LUMBER UNITS):	
Original capacity (production)	10 million	Year 1 capacity (No capacity/production)	0
		Year 2 capacity (Reduced production)	8 million
		Refitted efficient capacity (Year 3 and later)	
		Pessimistic	11 million
		Realistic	12 million
		Optimistic	13 million
		RECLAIMED WASTE MATERIAL (YEAR 2 AND LATER)	
		Gallons of chemical waste material	100,000
		Selling price per gallon	\$30
		Total annual revenue from chemical waste material	\$3 million

OTHER INFORMATION:

Income Tax Rate:	40%
Hurdle (Discount) Rate:	10%

The Audience

In thinking about his report, Ben gave some thought and consideration to his audience (i.e., the board of directors) and their concerns. Jeff Marcum, the CEO and president, is a board member. He's more focused on maintaining

and increasing plant performance, partially because of his lucrative performance-based incentives. In fact, he subsequently told Ben, "Look, why not let the EPA do their job and worry about the environmental concerns? Let's worry about business. We have to make money. Lorman just

takes its cues from the regulatory climate. That's why the EPA's there. That's the way we do it. When the EPA applies new emission limits and control orders on the plant, we will then comply. We can't let 'greens' on the fringe tell us how to run our business and influence company affairs. We have to make money." Even though subsequent conversations were always friendly, Ben got the distinct strong impression that Jeff wanted an analysis that portrayed the "closed cycle" system as a bad investment—although this was never stated explicitly.

Lorman's board of directors represents a cross-section of interest groups. Everyone on the board feels a responsibility to the shareholders, but some members of the board also pay special attention to community, labor, and other concerns. Several "outside" directors diversify the composition of the board: two local businesspeople from Yamica, a representative of the sawmill workers' union at the plant, a mutual fund manager whose firm holds a large block of Lorman shares on behalf of the fund's investors, an economist, a Yamica city official, and the corporation's legal counsel.

Ben considered their likely positions from recent conversations. The city official and the two businesspeople represented the city of Yamica. "The local economy would be severely affected by the shutdown to refit the plant," they admitted to Ben. "While we want assurances that the community isn't in danger, we are satisfied with the conclusion that Lorman isn't the source of harmful emissions in the absence of any firm proof of danger."

The lawyer pointed out, "Lorman is currently observing all existing EPA regulations on emission levels. Anyway, there's no clear indication that the Lorman mill is the only source of creosote and PCP chemical emissions. Lorman should wait for the government to establish an acceptable limit for emissions. In fact, recent claims initiated against two other U.S. mills producing creosote and PCP have been denied through successful defense actions in court because of a lack of clear evidence of a significant health hazard."

The labor representative expressed concern, "I'm uneasy about any chemicals that might affect employee health. But I also have to think about the short-term job loss at the plant. There aren't many other job opportunities in the area if the plant is shut down, Ben."

The mutual fund manager agreed with Jeff. "Undertaking a costly overhaul of the plant will damage Lorman's performance, profitability, and share price."

Closing Scene

Ben sat at his desk, trying to compose his thoughts and

continue preparing his analysis. What were his responsibilities in this situation to:

- ◆ his boss, Jeff;
- ◆ the board of directors;
- ◆ shareholders of Lorman Lumber Co.;
- ◆ Lorman employees; and
- ◆ the Yamica community?

How would his analysis affect his relationships with these people and his coworkers? How would his analysis affect his job security and ability to provide for and protect his family? As the thoughts swirled, the stress mounted. Ben sighed. Time to get back to work.

Lorman Lumber Co. Case Questions

What "wood" you do? Put yourself in Ben Watson's shoes. Prepare an analysis that will guide Lorman's decision on whether or not to make the capital investment in the "closed cycle" system.

1. What are Ben's responsibilities in this situation?

NOTE: You can apply the general standards in the *IMA Statement of Ethical Professional Practice* (www.imanet.org/about_ethics_statement.asp) to help you identify specific responsibilities for Ben in this situation.

2. Perform an economic cost-benefit analysis of whether or not capital should be invested in the "closed cycle" system. Clearly state your decision and conclusion from your analysis. Prepare a net present value (NPV) analysis and a payback period analysis as part of your economic analysis. (The NPV and payback period analyses can be organized neatly in an appendix to your case analysis. A reader of your case should be able to follow your work and computations. You can use an Excel spreadsheet. The results of your appendix analyses can be referenced in the body of your case to support your decision.)

3. Assess the impacts of your decision:

- ◆ What benefits/harms result and to whom?
- ◆ What rights are being exercised (denied) and by (to) whom?
- ◆ Do these impacts modify or change your decision? How? **SF**

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Note: Teaching notes are available from Tara Barker at tbarker@imanet.org.