

## **NORTHWEST NEWSPRINT, INC.**

By Peter C. Bell and John S. Hulland

The recent stabilization of the price of newsprint was welcome news for Northwest Newsprint, Inc., and John Smithers was now eager to exploit existing market conditions to the fullest. Northwest was a major producer of newsprint with pulpmills in the Pacific Northwest and Canada from which they supplied various North American markets.

Smithers, Assistant Controller in Northwest's Core Business - Papers Department, recognized that Northwest's shipping patterns had been derived when market conditions were very different from those today. Reviewing which mill supplied which market would likely reveal some opportunities for cost savings. He initially planned to develop and use a model to investigate the immediate newsprint allocation problem, but he hoped that the model could also be used to address some longer-term "strategic" issues.

### **Northwest Newsprint's Operations**

In the late 1970s, the Northwest Forest Products Company of Tacoma Washington purchased a majority interest in Clark Newsprint Ltd. of British Columbia. By the mid 1980s it had increased its holding in the latter company to almost 100%, and in 1988 the corporate name was changed to Northwest Clark, Inc..

Following the acquisition, Northwest Clark Inc. became one of the world's largest producers of newsprint, and ranked as one of the five largest forest products enterprises, with plants and mills located both in Canada and in the United States. The company also maintained extensive woodlands operations. By 1994 Northwest had sales approaching \$2 billion.

The company's sales could be broken into six product lines; newsprint, groundwood papers, fine papers, building products, and lumber (see Exhibit 1). Northwest Clark had always been primarily a pulp and paper products producer, however, beginning at the time of the merger, an increasing proportion of the company's total sales were attributable to the lumber and building product lines. Growth in these lines was largely dependent on US housing starts, while newsprint had been, and continued to be the company's largest product line, utilizing 75% of the firm's pulp and paper capacity. In recognition of the importance of newsprint, Northwest Clark established Northwest Newsprint Inc. as a separate subsidiary in 1986 with responsibility for all of Northwest Clark's pulp and paper operations.

Pulp and paper operations utilized about 85% of the company's effective capacity by 1990. Breaking out the production figures by product line, however, (Exhibit 2), indicated that some products made more efficient use of the available facilities than others. Highly efficient use of available capacity was essential if profitability was to be maintained in this capital intensive and highly competitive industry. The 85% utilization rate achieved by Northwest was about the industry norm; rates lower than this would be viewed with concern.

## Newsprint

Newsprint was a type of paper that had only one use; it was the paper on which newspapers were printed. The world demand for newsprint was, therefore, highly dependent on the demand for newspapers, which was in turn dependent on business conditions around the world which influenced the demand for newspapers and newspaper advertising.

Canada, the United States, and Japan were the world's largest producers of newsprint, and the United States was by far the largest consumer, consuming more than 40% of the total world supply. Japan, the United Kingdom, and West Germany were other major newsprint users. Since the US and Japan consumed virtually all of their own production, Canada was left as the world's largest newsprint exporter. Since Northwest's newsprint mills were in Canada, prices received were considerably affected by fluctuating exchange rates, particularly that of the US dollar.

The price of newsprint had fluctuated from in the US\$410/tonne to US\$500/tonne range since mid-1993, but a recent increase in demand beginning in 1994 had led to a surge in prices. The present price was US\$750/tonne, representing a 47% increase over the last twelve months. It appeared that additional price increases were unlikely: this morning's newspaper suggested that one manufacturer was now considering reducing prices by a \$58/ton.

## The Allocation Problem

Northwest Newsprint operated a total of ten newsprint mills in the US and Canada, with the majority located in the Pacific Northwest. Three of the mills were located in Canada. Since more than 85% of the company's newsprint demand came from the US, the Canadian mills shipped most of their output to the south. The company's seven US mills were assigned specific customers that effectively required their entire newsprint output. These assignments seemed generally quite logical. A mill located close to a large demand center would naturally supply that center, or in other cases, mills that were quite isolated from major demand centers exported the majority of their production to Japan or elsewhere on the Pacific Rim. While these assignments were somewhat arbitrary, the company was satisfied that they yielded acceptable results.

As Smithers examined the 1995 production plan, he noted that reassignment of newsprint from the three Canadian mills to North American customers might provide some opportunities for cost savings. The projected 1995 production at the three remaining unassigned mills - Spruce Mills, Naomee Mills, and Duchesne - was 703,737 tonnes split among the three mills as indicated in Table 1.

<b>Table 1: 1995 Production (projected)*</b>		
Mill	Daily (tonnes)	Annual (tonnes)
Spruce Mills	462.0	166,320
Naomee Mills	756.5	272,340
Duchesne	737.0	265,077
<b>TOTAL CAPACITY</b>		<b>703,737</b>

\* The daily figures (the number of tonnes of newsprint that can be produced during a 24-hr. operating day) are multiplied by 360 to calculate the annual projection. This allows for about five days of scheduled down time annually.

Northwest Newsprint's 3,000 customers could all be supplied from one of nine major centers: Seattle, Washington; Chicago, Illinois; Denver, Colorado; Dallas, Texas; New Orleans, Louisiana; Los Angeles and San Francisco, California; Vancouver, British Columbia; and Calgary, Alberta. The projected 1995 annual demand for these centers is indicated in Table 2.

<b>Table 2: 1995 Projected Demand</b>	
Distribution Center	Annual Demand (tonnes)
Seattle	40,727
Chicago	55,608
Dallas	92,680
New Orleans	92,680
Denver	23,832
Los Angeles	211,841
San Francisco	52,960
Vancouver	32,581
Calgary	8,145
<b>TOTAL DEMAND</b>	<b>611,054</b>

On merging, Northwest and Clark had signed an agreement that production would be equitably shared among all the mills. That is to say, one mill could not be scheduled to operate at 100% capacity utilization while another mill was left idle. This was now interpreted as meaning that each mill must operate at least six days out of every seven.

Northwest Newsprint was expecting prices for newsprint to remain constant over the next year at a delivered price of \$750 per tonne to customers located in the US, and US\$700 per tonne to Canadian customers. (All currency values have been converted to \$US at an exchange rate of \$0.75 US equal to \$1.00 Canadian.)

Production of newsprint was a relatively capital intensive process, but the production of one tonne of newsprint still involved significant variable costs. These costs included raw materials (wood, supplies, chemicals), direct labor, and energy, but excluded fixed costs such as salaries, insurance, taxes, administration, depreciation and similar service department expenses. Using a direct costing approach, Northwest estimated newsprint production costs at \$390/tonne for Spruce Mills, and \$415/tonne for both Naomee Mills and Duchesne.

Shipping finished newsprint from the mills to the distribution centers was an expensive process. Shipping costs, estimated for 1995, are summarized in Exhibit 3. (Not all rates are quoted. In some cases, no reliable shipping method had been found.)

In November 1994, the company had assigned newsprint production for 1995 (see Exhibit 4) using this information. Spruce Mills' and Duchesne's production was assigned to the nearest respective markets, while Naomee Mills' production was used to meet the remaining demand. The resulting allocation appeared acceptable but Smithers wondered whether or not a better set of assignments could be determined: had he left money "on the table"?

#### Freight Rates and Delivery Swaps

An initial operating plan for 1995 was a key output from the model, but Smithers also planned to address two other important issues: freight rate discounts and "delivery swaps."

**Freight Rate Discounts** were common for large volumes and in the past Northwest had managed to negotiate such discounts with most carriers when volumes were sufficient. Smithers believed that he could negotiate a freight rate reduction of about 5% in 1995 for any mill-to-destination shipments greater than 100,000 tonnes. He wondered whether the availability of such discounts would affect the operating plan and the projected profit.

**"Delivery Swaps"** were under negotiation between Northwest Newsprint and some of its major customers including the Los Angeles Times, Knight-Ridder and Hearst chains. "Delivery swaps" traded off customers to other newsprint suppliers in order to reduce freight costs. Under a swap arrangement, Northwest's contract to supply customer A would actually be delivered by another newsprint supplier, most likely one of Northwest's US mills, which could meet the contract at lower cost. Usually the alternate supplier was a mill which was closer to customer A than Northwest's Canadian mill and consequently had lower freight costs. Smithers hoped to use the model to identify the center(s) that would make the proposed delivery swaps cost attractive.

#### Longer Term Issues

Northwest Newsprint's management recognized that the model could be useful for addressing some capacity planning issues. The operating plan projected 1995 capacity utilization for newsprint production of about 86%. Some major capital decisions under consideration could, however, dramatically alter the availability of newsprint capacity.

**Alternative 1** involved the conversion of a newsprint machine at Naomee Mills to groundwood specialties' production. Groundwood specialties were types of paper used for printing

advertising inserts, telephone directories, and computer forms, and this was a faster growing segment of the printed paper business than was newsprint. In 1994, the groundwood speciality business had operated at 96% of effective capacity, leading to concern that customers for these products might have to be turned away in the future if additional production capacity was not made available. Converting one newsprint machine at Naomee Mills would shift 58,000 tonnes/year of paper making capacity from newsprint to groundwood specialties at minimal cost.

**Alternative 2** was to reduce newsprint capacity by selling off an older machine located at Naomee Mills, reducing capacity by 44,000 tonnes/year (it was unlikely that the company would make much money on the sale of this equipment). As an alternative to selling this second machine, it could be converted to groundwood specialties production, along with the first, at minimal cost.

**Alternative 3** was to expand existing capacity. A new newsprint machine with a capacity of 150,000 tonnes of newsprint/year could be installed at any of the three mills for a total cost of \$120 million. The new machines produced paper of a higher quality than that obtained from most of the existing, older, machines.

Higher quality newsprint was emerging as a major competitive factor within the industry. In the early 1990s when there had been worldwide oversupply of newsprint, customers had been demanding a higher quality product from suppliers. As the market had picked up, these demands had faded somewhat, but as new capacity came on line and production expanded, it seemed clear that this trend would reappear. In order to respond to this demand for higher quality, Northwest could install completely new equipment (as mentioned above), or could upgrade existing machinery. Older equipment could be reengineered to deliver a higher quality product (comparable to newsprint from the new machine) for an expenditure of about \$8 million per machine. However it was not clear to Smithers how the availability of higher quality newsprint would affect sales.

**Alternative 4** was to construct a new mill in Jasper, Georgia. This new operation would cost at least \$250 million, and would include woodlot operations, pulping facilities, a complete newsprint mill, controls and administrative facilities. In addition, new newsprint machinery, similar to that mentioned in alternative 3, would also have to be purchased at additional cost. A significant advantage of such expansion would be a dramatic reduction in the cost of delivery to Northwest's southern US customers.

#### Demand Forecasts

Smithers believed that the original 1995 demand forecasts were both reasonable and realistic but he wished to explore the options available to Northwest under more optimistic and under more pessimistic (Exhibit 5) demand projections. He was particularly concerned about which strategic alternatives should be considered under the differing demand conditions.

Northwest Newsprint was operating its newsprint operation using existing capacity and the assignment plan developed late in 1994. Smithers hoped to use the information he had collected to investigate alternate allocation plans, as well as to examine some of the strategic options facing Northwest.

## ASSIGNMENT:

1. How should Northwest Newsprint (NN) ship product meet its market demands?
2. How does your solution differ from the original allocation (Exhibit 4)? What are the benefits?
3. Can NN save money through freight rate discounts on volumes greater than 100,000 tonnes? If so, how much?
4. Should a 58,000-tonne-per-year machine at Naomee Mills be converted to groundwood specialities?
5. Can you recommend specific “delivery swap” arrangements to improve NN’s bottom line?

**Exhibit 1**  
NORTHWEST NEWSPRINT NET SALES BY PRODUCT

Net Sales By Product*				
Product	1992		1993	
	\$000	%	\$000	%
(1) Newsprint	\$ 724,356	43.6	\$ 808,591	49.5
(2) Groundwood papers	195,804	11.8	208,918	12.8
(3) Fine papers	415,372	25.0	371,901	22.7
(4) Kraft products	51,883	3.1	57,948	3.5
<b>Total (pulp + paper)</b>	<b>\$1,387,415</b>	<b>83.6</b>	<b>\$1,446,548</b>	<b>88.5</b>
(5) Building products	164,432	9.9	128,008	7.8
(6) Lumber	108,333	6.5	59,706	3.7
Total ((5) & (6))	\$ 272,765	16.4	\$ 187,714	11.5
<b>Total sales</b>	<b>\$1,660,180</b>	<b>100.0</b>	<b>\$1,634,262</b>	<b>100.0</b>

\*The Net Sales figures include adjustments for fluctuations in foreign exchange rates, but are calculated before other period and product costs.

**Exhibit 2**  
NORTHWEST NEWSPRINT PULP AND PAPER PRODUCTION

Primary Production - Pulp and Paper Operations				
	Newsprint	Groundwood Papers	Fine Paper	Kraft Products
Effective capacity* (1994) (000's tonnes)	1,937	333	127	207
(As % of total 1994 effective capacity)	74.4	12.8	4.9	7.9
Actual production (1994)	1,575	321	101	173
Capacity Utilization (1994)	81.3%	96.4%	74.5%	83.6%

\*Effective capacity is calculated from the number of tonnes of newsprint produced per day per machine and the number of available days (allowing for scheduled downtime) for that machine. The effective capacities for each machine are then aggregated.

**Exhibit 3**  
NORTHWEST NEWSPRINT TRANSPORTATION COSTS

<b>Transportation Costs</b> (US \$ per tonne delivered)			
	<b>Producing Mill</b>		
<b>Distribution Center</b>	<b>Spruce Mills</b>	<b>Naomee Mills</b>	<b>Duchesne</b>
Seattle	-	\$ 46.68	\$52.80
Chicago	\$ 89.77	128.82	97.17
Dallas	162.24	204.13	210.42
New Orleans	166.18	195.08	200.62
Denver	151.77	162.83	142.82
Los Angeles	-	147.46	150.14
San Francisco	151.11	115.49	124.83
Vancouver	-	72.42	42.17
Calgary	-	77.50	87.94

**Exhibit 4**  
NORTHWEST NEWSPRINT PLANNED DISTRIBUTION

<b>The Original 1995 Allocation</b> (tonnes delivered)			
	<b>Producing Mill</b>		
<b>Distribution Center</b>	<b>Spruce Mills</b>	<b>Naomee Mills</b>	<b>Duchesne</b>
Seattle	-	40,727	-
Chicago	55,608	-	-
Dallas	64,976	27,704	-
New Orleans	-	92,680	-
Denver	23,832	-	-
Los Angeles	-	22,401	189,440
San Francisco	-	52,960	-
Vancouver	-	-	32,581
Calgary	-	-	8,145

**Exhibit 5**  
NORTHWEST NEWSPRINT 1995 FORECASTS

<b>1995 Forecast Annual Demand (tonnes)</b>		
Distribution Center	Optimistic	Pessimistic
Seattle	45,028	29,557
Chicago	61,481	45,518
Dallas	102,468	75,863
New Orleans	102,468	75,863
Denver	26,349	19,507
Los Angeles	234,213	173,401
San Francisco	58,553	43,350
Vancouver	36,022	23,646
Calgary	9,006	5,911
<b>TOTAL</b>	<b><u>675,588</u></b>	<b><u>492,616</u></b>