

Recycle Paper Initiative Report and Recommendations

TO: Candace Corvey, VP of Finance

FROM: Recycled Paper Initiative Coalition members

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Don Sundberg, VP for Research and Public Service

DATE: 22 May 2002

RE: Recycled Paper Initiative Report Summary and Recommendations

Attached please find a summary of our research and recommendations as well as additional materials that support the recommendations of the recycled paper initiative. We begin with a brief background and summary of our findings.

Beginning in the fall of 2001 a group of students, staff and faculty came together and began a discussion about the possibility of increasing the content of post-consumer recycled paper used by the university community. The group consists of representatives from Student Senate, Student Environmental Action Coalition, Printing Services, Purchasing Office, Central Receiving and the Office of Sustainability Programs. We immediately recognized that this issue stretches beyond that of post-consumer content and includes the challenge of paper use, reduction, as well as questions pertaining to chlorine use and other bleaching techniques. To endorse the paper issue, the Student Senate passed a resolution that calls upon the university to progressively increase the post consumer content of copy bond paper to 100% by the year 2005.

The interest in paper content and use, stemmed from the fact that in a twelve-month period, the UNH community consumes ~ 30 million sheets of copy bond paper. This figure is a compilation of paper purchased by academic departments, offices throughout campus, computer centers, and used in copy machines. When contextualized within the state system of New Hampshire, this represents quite a significant level of purchasing power. At present, the recycled paper content standard for copy bond paper used by the Federal Government, the State of NH and UNH is 30% post-consumer.

On April 18th 2002, a bid was posted by the Purchasing Office with the intent of determining what the overall cost difference would be for the university if it were to shift from a dependence upon 30% post-consumer to a higher percentage. The summary of the bid responses as well as a cost analysis is included in this document.

The purpose of this report is to encourage and make recommendations to the university community in support of an increase in the percentage of post-consumer material in the paper used by the university while also engaging in a constructive approach to paper-use reduction.

A SUMMARY OF OUR FINDINGS INCLUDES:

- ⇒ A comparative cost analysis of paper choices and recommendations
- ⇒ An overview of the options of recycled paper
- ⇒ An explanation as to why we encourage an increase in the post-consumer standard
- ⇒ Information sources that support our proposal
- ⇒ Examples of other universities who have already increased their recycled paper content
- ⇒ Survey results from campus offices who have tested paper in their printers and copy machines with a range of recycled content
- ⇒ Paper samples from some of the companies that we have researched
- ⇒ An explanation linking to an environmental conservation effort
- ⇒ Letters of support from faculty and staff interested in supporting this effort

The university has used an estimated:

- ⇒ 6,761 cases of 30% post-consumer copy bond paper at \$156,319 during the first period ('99-'00)
- ⇒ 5,427 cases of 30% post-consumer copy bond paper at \$121,514 during the second period ('00-'01)
- ⇒ 4,607 cases of 30% post-consumer copy bond paper at \$101,154 during the present fiscal period ('01-'02)

A SUMMARY OF OUR RECOMMENDATIONS INCLUDE:

- ⇒ A continued reduction of the amount of paper used on campus
- ⇒ Shifting the standard from one-sided to two-sided copies when appropriate
- ⇒ All computer centers ought to default to double-sided copies when printing
- ⇒ A gradual transition from 30% post-consumer content to ideally 100% post-consumer content over 4 years.
- ⇒ On-going collaborative effort of the Recycle-paper initiative group (students, staff, faculty)
- ⇒ Increase educational outreach activities: website, newspaper articles and advertisements, WUNH announcements, campus newsletter blurbs, educational displays
- ⇒ Coursepacks printed at MUB printing services on 100% post-consumer paper

RECOMMENDATIONS BASED ON RECENT BID PROCESS:

- ⇒ XpedX in Portland, Maine, was low bidder. They submitted a bid for Rolland New Life DP 100, which is 75% post consumer recycled, 100% total recycled, and process chlorine free. The price represents a 9.6% increase over what USNH currently pays for Domtar 30% recycled paper. This translates into a cost of approximately \$ 14,000 more per year based on 30 million sheets.
- ⇒ Redo bid with compounded numbers from the USNH system.

PAST, PRESENT, AND FUTURE CONSERVATION TECHNIQUES

Universities across the country have the opportunity to and are beginning to take a leadership role in creating policy and taking actions that can lead to a sustainable society. Higher education has the ability to set institutional examples and illustrate how to struggle with the complex issues associated with prioritizing sustainable principles in decision-making. All decisions made within a university or college tend to reflect the educational objectives and values of that institution.

The University of New Hampshire has committed to evolving into being a sustainable institution. In 1997 the Office of Sustainability Programs was established which was charged with integrating principles of sustainability into university operations, research, and curriculum. The mission of the Office of Sustainability Programs is to develop University-wide education programs and projects that integrate sustainability practices across all facets of the University including teaching, research and public service. OSP collaborates with faculty, administrators, staff and students to link the emerging principles, science, and institutional practices of sustainability to student and professional development.

This initiative is a joint effort between students, faculty and staff interested in both reducing paper consumption as well as increasing the amount of post-consumer content. The following report encourages UNH to take a leadership role in addressing the issues of paper consumption nation wide. Some of the concerns that have led this group to taking action stem from the fact that:

- ⇒ Every ton of paper made from recycled materials saves about 17 trees.
- ⇒ Recycling paper uses 60% less energy than manufacturing paper from virgin timber.
- ⇒ Paper had an overall-recycling rate of 35.3% in 1994. About 55.3% of corrugated boxes, 45.3% of newspapers, 19.3% of books, 30% of magazines, and 42.5% of office papers were recycled in.
- ⇒ Recovered paper is used to make a variety of products, including copier paper, paper towels and napkins, corrugated boxes, and hydraulic mulch.
- ⇒ Recycling office waste paper saves valuable landfill space - 3 cubic yards for every ton of paper recycled - and extends the lives of our landfills. EPA reports that by the year 2000 half of the current 6,500 operating landfills will be closed.
- ⇒ Throwing away paper is a careless waste of a valuable resource.

Source: www.epa.gov/grtlakes/seahome/housewaste/src/paper.htm

Along with the increase in the post-consumer content of the paper that UNH purchases, it is a necessity that conservation of paper on campus helps to close the loop. The concept of "closing the recycling loop" has many essential parts to make it a completely circular process. Buying recycled is a clear example of how we can close the loop, but if we reduce our demand for paper on campus, it will not only cut down on waste but also on cost, helping to subsidize the increased cost of offering a higher content of post-consumer and processed chlorine free recycled paper on campus. Conservation of paper in the computer labs, copy centers, copiers, classrooms, and offices is a key action that students,

faculty, and staff of the university can do campus wide. Along with other schools nationwide we can make a difference by decreasing the use of virgin fibers and a reduction in waste.

- ⇒ The Registrar has shown exceptional pro-active conservation techniques by not printing the "Time and Room Schedule" this year but instead only offer it online.
- ⇒ Telecom who also went computerized with their billing, and cut out the need for costly envelopes and postage should also be commended for their efforts in conservation.
- ⇒ The Student Environmental Action Coalition (SEAC-UNH) has offered re-writes (single-side printed sheets of paper are bound and sold as notebooks to students) to the campus through many commercial outlets.
- ⇒ MUB Copy Center offers 100% post-consumer waste and tree-free (i.e. kenaf) paper for sale in their retail outlet
- ⇒ MUB Copy Center Course Packets will be printed double-sided on 100%post-consumer waste paper in Fall 2002
- ⇒ The Computer clusters on campus are being urged to set the default for all printers as double-sided, or at the very least, post on each computer directions on how to print double sided. They already offer a reduction in price to those printing double-sided.
- ⇒ Posting directions clearly on how to copy double sided on copy machines around campus.
- ⇒ Faculty is being urged to accept all papers printed double sided, as well as, encourage their students to print double sided or print rough drafts on recovered one sided print jobs.
- ⇒ Faculty is also being urged to set the example by printing double sided for any handouts they choose to use in class as well as exploring the use of blackboard and other electronic media to present information to their students.

Overall, campus progress towards sustainability has been moving in a positive direction, and this momentum needs to be built upon to further create a greener, more sustainable UNH.

COST ANALYSIS SUMMARY FOR PAPER

All offices and departments on campus, as well as computer centers and copy machines, use paper. The manner in which the paper is purchased is decentralized; each office/academic department is responsible for purchasing paper for its own use. The public copy machines in the library and throughout campus are for the most part, leased through Printing Services, who in turn are responsible for replenishing the supply. Paper may be purchased through UNH Printing Services, UNH Central Receiving, or through Boise Office Solutions. This, however, does not exclude any department on campus from buying paper products from any other vendor, at any price.

The current paper contract for the State of NH permits the purchase of Domtar 30 at a lower price than other paper distributors. This is due to the large volume of paper that is purchased by the university. Domtar 30 is a 30% post-consumer recycled paper that is processed chlorine-free (PCF). Following several months of reviewing paper data, we have comprised a *Comparative Paper Cost Analysis* based on the amount of paper bought through the three outlets at UNH: UNH Printing Services, UNH Central Receiving, and Boise Office Solutions.

The standard office paper used at UNH is 20# white bond copy paper. The attached analysis is a summary of three fiscal periods. The relevant fiscal periods begin July 1st 1999, and continue at annual intervals until the present period, which ends June 30th 2002.

The university has used an estimated:

- ⇒ 6,761 cases at \$156,319 during the first period ('99-'00)
- ⇒ 5,427 cases at \$121,514 during the second period ('00-'01)
- ⇒ 4,607 cases at \$101,154 during the present fiscal period ('01-'02)

There are two observations that we offer in analyzing these figures:

1) Based upon the percentages established within the cost analysis, paper usage during the past three fiscal periods has decreased, along with a greater decrease in the total cost per fiscal period. The amount of paper purchased dropped 20% from the first fiscal period to the second, and 15% from the second to the present fiscal period. The cost associated with this decrease is an estimated 22% decrease from the first fiscal period to the second, and a 17% decrease from the second to the present fiscal period. As for the forecasted fiscal period ('02-'03), the total amount of paper usage is expected to increase only marginally.

The reasoning for the increase in the expected paper usage for the next fiscal period, contrary to the progressive decline over the past three fiscal periods, is due to the overall growth in student enrollment over the past three years at the University of New Hampshire of approximately 3% per year. Although a decline over the past few fiscal periods assumes that paper could only decrease, in truth, as past student growth statistics show, paper usage was meant to increase from year to year, however sustainable office practices involving paper has caused an offset decline to occur leading to the following point.

2) Data indicates that paper use on campus has declined during the three fiscal periods between 1999 – 2002. We believe that the decrease is due in part to the shift to electronic correspondence from a variety of programs throughout the university. For the purpose of this report, we highlight two case examples.

a) **UNH Telecom:** As of December 2001, UNH Telecom has switched over to an electronic billing system, in which student phone bills are sent via email rather than printed. Telecom was using an estimated 1.3 cases, or 6,500 sheets, of paper per month during 2001. Since changing to an electronic billing system, Telecom is forecasting savings of approximately 11.7 cases, or 58,500 sheets, of paper annually, beginning 2002.

b) **Dimond Library:** At the end of October 2001, the Dimond Library converted to an electronic system for notifying library users. Each courtesy notice may be comprised of approximately 1 to 4 sheets. Since changing to this system, they have estimated a decrease of approximately 80% a month. During the '99 -'00 fiscal period, the library used approximately 29 cases, or 69,600 sheets, of 2400 tractor feed sheet paper. During the '00 -'01 fiscal period, they used approximately 20 cases, or 4800 sheets of paper. Currently, the library predicts a use of approximately 15 cases for the current fiscal period.

Other departments have also instituted minor changes in their paper consumption by adopting a variety of reduction programs. Efforts by the Registrar's Office are now underway, changing to the use of an electronic registration book, which will no longer need to be mailed out to students. These cases are examples of how an institution can strive toward decreasing paper consumption.

Conclusion

Paper use is projected to increase at the University of New Hampshire for the next fiscal period 2002 - 03, based upon the 3% increase in student growth. The change toward more electronic methods of correspondence, as well as other means for completing various tasks without the need for paper, has put forth a valuable effort by the university community to commit to change.

SUMMARY OF RECYCLED COPY PAPER BID

As a part of our research and effort to move the UNH campus to increasing the recycled content for the Purchasing Office presented a public bid which included a sustainability statement and an opportunity to companies to respond with a variety of prices for post-consumer content. Below is a brief summary of the bidding responses:

- ⇒ XpedX in Portland, Maine, was low bidder. They submitted a bid for Rolland New Life DP 100, which is 75% post consumer recycled, 100% total recycled, and process chlorine free. The price represents a 9.6% increase over what USNH currently pays for Domtar 30% recycled paper. This translates into a cost of approximately \$ 14,000 more per year based on 30 million sheets.
- ⇒ Boise Office Solutions in Manchester came in next low bidder, with Aspen. The Aspen 100 is 100% post consumer recycled and process chlorine free. The price represents an 18% increase over what USNH currently pays, translating to approximately \$30,000.00 more per year.
- ⇒ Other vendors who participated in the bid were Graphic Paper, Central Islip, NY; New Leaf Paper, New York, NY; and RIS Paper from Woburn, MA.

Paper Comparative Cost Analysis				
Current and Past UNH Consumption and Total Cost				
CR	Great White	\$22.05	per case	PS Domtar
	GeoCycle	\$22.00	per case	
	Domtar	\$21.50	per case	BC Premium Xerographic
	Great White 3hd	\$26.40	per case	X-9000 Xerographic
	Domtar 3hd	\$23.56	per case	Aspen
<i>CR - Central Receiving, PS - Printing Services, BC - Boise Cascade</i>				
Total Purchased				7/1/99-6/30/00
				7/1/00-6/30/01
	Central Receiving	Sheets	Great White	15,115,000
		Cases		3,023
		Sheets	GeoCycle	4,400,000
		Cases		880
		Sheets	Domtar	0
		Cases		4
		Sheets	Great White 3hd	110,000
		Cases		22
		Sheets	Domtar 3hd	0
		Cases		0
		Sheets	Total	19,625,000
		Cases	Total	3,925
				4
	Printing Services	Sheets	Domtar	22,410,000
		Cases		4,482
		Sheets	Total	22,410,000
		Cases	Total	4,482
				2
<i>Paper purchased by PS from CR subtracted from PS - 2720 Cases (FY2 - 1040, 1041)</i>				
	Boise Cascade	Sheets	Premium Xerographic	800,000
		Cases		160
		Sheets	X-9000 Xerographic	1,230,000
		Cases		246
		Sheets	Aspen	420,000
		Cases		84
		Sheets	Total	2,450,000
		Cases	Total	490
				360
	Total Purchased	Sheets		44,485,000
		Cases		8,897
				7
			Percent Difference	-11.8
<i>2001 to Present Fiscal Period includes Estimate to complete the remainder of the</i>				
Current and Past UNH Consumption and Total Cost - continued				

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	Total Cost			7/1/99-6/30/00	7/1/00-6/30/00
	Central Receiving		Great White	\$66,657.15	\$4,760.00
			GeoCycle	\$19,360.00	\$0.00
			Domtar	\$0.00	\$91,180.00
			Great White 3hd	\$580.80	\$440.00
			Domtar 3hd	\$0.00	\$0.00
			Total	\$86,597.95	\$96,330.00
	Printing Services		Domtar	\$105,775.20	\$68,440.00
			Total	\$105,775.20	\$68,440.00
	Boise Cascade		Premium Xerographic	\$4,080.00	\$3,390.00
			X-9000 Xerographic	\$5,658.00	\$6,110.00
			Aspen	\$2,284.80	\$1,950.00
			Total	\$12,022.80	\$11,460.00
	Total Cost			\$204,395.95	\$176,330.00
				Percent Diffence	-13.7%

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Recycled Paper Alternatives - Estimated Total Costs for 2003				
New Life 50				
	\$21.64	per case		
			7/1/01-6/30/02	Forecasted 7/1/02-6/30/03
Total Consumption:			6,459	7733.67
Total Cost:			\$139,772.76	\$167,356.55
			Cost Difference	\$27,583.79
New Life 100				
	\$26.08	per case		
			7/1/01-6/30/02	Forecasted 7/1/02-6/30/03
Total Consumption:			6,459	7733.67
Total Cost:			\$168,450.72	\$201,694.03
			Cost Difference	\$33,243.31
Envirographics 100				
	\$26.63	per case		
			7/1/01-6/30/02	Forecasted 7/1/02-6/30/03
Total Consumption:			6,459	7733.67
Total Cost:			\$172,003.17	\$205,947.54
			Cost Difference	\$33,944.37
Aspen 100				
	\$28.00	per case		
			7/1/01-6/30/02	Forecasted 7/1/02-6/30/03
Total Consumption:			6,459	7733.67
Total Cost:			\$180,852.00	\$216,542.67
			Cost Difference	\$35,690.67
Student Body Enrollment Figures				
Student Body Enrollment				
Fall 1999	11,965		Spring 2000	11,508
Fall 2000	12,317		Spring 2001	11,801
Fall 2002	12,404			
Total Average per Academic Year				
1999	11,737	Percent Increase		
2000	12,059	2.75%		
2001	12,404	2.86%		

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UNIVERSITY SYSTEM OF NEW HAMPSHIRE			BID NUMBER: 02-758C		
USNH PURCHASING & CONTRACT SERVICES			DUE DATE: 04/29/02 at 11:00 a.m. EST		
PROJECT DESCRIPTION: Recycled copy paper					
FIRM:			Xpedx	Graphic Paper	Nev
ITEM	DESCRIPTION	UNIT	TOTAL COST	TOTAL COST	
1	8.5" x 11" white: (List product name/description below)	per carton	\$28.48		
		per skid	New life DP 100 (Rolland Papers) \$26.35		
		per truckload	See product spec. attachemnt \$24.39	New Life DP 100 880crtns x 27.50/c \$24,200.00	
2	8.5" x 11" color: (List name/description/available colors)	per carton	\$30.73		
		per skid	Exact Multipurpose (Wausau Papers) \$29.00		
		per truckload	Groveton, NH see attachment for specs \$27.30		
3	8.5" x 11" Three hole punched white: (List name/description below)	per carton	\$30.30		
		per skid	New Life DP 100 \$28.28	We will ship even pallets \$1,160.00	
		per truckload	\$25.98	of 40 ctns with the reg paper \$25,960.00	
Alternates/additional papers:					
	8.5" x 11" color: (List name/description/available colors)	per carton	\$63.63		
		per skid	Astrobrights (Wausau Papers) \$60.36		
		per truckload	Groveton, NH \$56.53		
			# of cartons per skid 40	# of cartons per skid 40	
	Packaging clarification:		# of skids per Truckload 22	# of cartons per truckload 880	
			# of cartons per truckload 880		
ADDENDA ACKNOWLEDGE RECEIPT			02-728C		1 &
BID VALID			180 days with escalators thereafter	60 days	90 days thereafter
CONTACT PERSON			Kevin Massey/Brenice Helms (CSR)	Greg Barber	Mic
ORDER ADDRESS			160 Fox St Portland, ME 04101	31 Windsor Place Central Islip, NY 11722	185 100
PHONE			800/343-1293	800/840-4555 x113	212

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FAX			800/785-0142	631/761-9701	212
EMAIL			kmassey@ime.net	greg@gregbarberco.com	mic@m
TERMS			2% 20 net 30 days	1% 30 days	Net
FOB: DEST, PP & ALLOW			FOB: DEST, PP & ALLOW	FOB: DEST, PP & ALLOW	FO:

UNIVERSITY SYSTEM OF NEW HAMPSHIRE			BID NUMBER: 02-758C		
USNH PURCHASING & CONTRACT SERVICES			DUE DATE: 04/29/02 at 11:00 a.m. EST		
PROJECT DESCRIPTION: Recycled copy paper					
FIRM:			RIS Paper	Boise Office Solutions	
ITEM	DESCRIPTION	UNIT	TOTAL COST	TOTAL COST	
1	8.5" x 11" white: (List product name/description below)	per carton	Envirographic 100 pc \$34.80	\$28.95	
		per skid	\$1,240.00/ 40 cartons	Aspen 100 \$28.85 x 40 = \$1,130.00	
		per truckload	\$23,840.00/ 800 cartons	100% PC Xerographic \$26.98 x 880 = \$23,742.40	
2	8.5" x 11" color: (List name/description/available colors)	per carton	\$36.00	no 50% available	
		per skid	\$1,300.00/ 40 ctns		
		per truckload	\$24,640.00/ 800 ctns		
3	8.5" x 11" Three hole punched white: (List name/description below)	per carton	\$36.60	\$30.55	
		per skid	\$1,320.00/ 40 ctns	Aspen 100 \$30.00 x 40 = \$1,200.00	
		per truckload	\$25,080.00/ 800 ctns	100% PC Xerographic \$28.99 x 880 = \$25,511.20	
Alternates/additional papers:					
	8.5" x 11" color: (List name/description/available colors)	per carton	\$31.25	\$43.00	
		per skid	30 pc Wasbau/ \$1,100.00/ 40 ctns	MP Brites 30% PC \$42.75 x 40 = \$1,710.00	
		per truckload	\$20,000.00/ 800 ctns		
			800-880 cartons per truckload (depending on size of trailer)		
	Packaging clarification:				
ADDENDA ACKNOWLEDGE RECEIPT			02-728C	02-758c	

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BID VALID		180 days with escalators thereafter	30 days
CONTACT PERSON		Kevin Massey/Brenice Helms (CSR)	Robert Travers
ORDER ADDRESS		160 Fox St Portland, ME 04101	205 Wildwood St Woburn, MA 01888
PHONE		800/344-1715	800/331-7676 x6410
FAX		800/344-1792	603/621-3778
EMAIL		bob.travers@rispape r.com	stephanie.sgroi@boiseof fice.com
TERMS		Net 30	Net 20
FOB: DEST, PP & ALLOW		FOB: DEST, PP & ALLOW	FOB: DEST, PP & ALLOW

EXTERNAL EXAMPLE: STATE UNIVERSITY OF NEW YORK (SUNY) AT BUFFALO

Other universities of comparable size have done exactly what we are recommending to do. One example of these universities is the State University of New York at Buffalo. With approximately 25,000 students and about 5,000 faculty and staff members, SUNY at Buffalo is a state school of comparable size to the University of New Hampshire.

Before the 2000 fiscal year, SUNY Buffalo used predominantly 30% post-consumer content paper (currently what UNH uses throughout campus). In 2001, 50% of all paper used on the SUNY Buffalo campus was Envirographic-100, a 100% post-consumer fiber recycled paper which is “process chlorine free.” The other half of paper used was their old 30% post-consumer recycled content paper. Currently, SUNY Buffalo is phasing out as much of the 30% as they can, with hopes in using exclusively the Envirographic-100 in the near future.

Yearly, SUNY Buffalo consumes more than 125,000 reams of white copy paper. The Central Store sells reams of both papers to the different departments at comparable prices. Last year, the Envirographic-100 cost \$2.90 per ream, while the 30% recycled cost \$2.60 per ream. These prices fluctuate regularly. In all, it cost the school around \$30,000 to change a higher post-consumer content.

To help increase the amount of the Envirographic-100 paper used throughout their campus, SUNY Buffalo’s Central Stores gained the support of the largest users of paper on campus, including the library, computer labs, and copy centers. By having these users use exclusively the Envirographic-100, the price of this paper was drastically reduced.

The paper purchasing process on the SUNY Buffalo campus is similar to that at UNH. A bidding process finds the most economical distributor and State contracts are taken into consideration. At SUNY Buffalo's Central Stores warehouse there is storage for paper, allowing them to buy larger quantities, resulting in lower bids.

When asked about the compliance and acceptance of the switch by the campus as a whole, it was said that people were happy with the changes and glad to be moving forward in a process that was long over-due. SUNY Buffalo’s website addresses any concerns of 100% post-consumer recycled paper not being of equal working quality. “Envirographic-100 paper is white-white in color and runs beautifully through all copy machines and printers. It produces no more micro-dust than “regular” copier paper. The environmental value of purchasing Envirographic-100 paper far outweighs the approximately \$.30 per ream price difference between Envirographic-100 and conventional copy paper.”

The State University of New York at Buffalo and the University of New Hampshire are both state schools, use similar amounts of paper, have comparable student and faculty numbers, purchase paper in similar ways, and as far as the quality of the paper storage, have comparable over-all climates.

All information obtained from the SUNY Buffalo’s website:

Source: www.wings.buffalo.edu/ubgreen/

From: Simpson, Walter [mailto:wsimpson@facilities.buffalo.edu]

Sent: Tuesday, November 20, 2001 8:07 AM

To: Lisa Pollard

Subject: RE: Recycled Paper Info from your website

We had been struggling for years to promote 100% post consumer paper on campus when the paper in question was off white and sometimes a problem in certain copy machines. We never did much better than 10% of total paper volume. But when we switched to Envirographic 100 (Badger) most aesthetic/professional and copier concerns went away. It's a white/white paper that works well in machines. There is some bleed when trying to double side copy in ink jet printers but not copy machines. It costs more but we figured out an internal way to subsidize it so the price for it on campus is close to that of the conventional copy paper (which is 30% PC recycled). We got to 50% usage of E-100 paper by not only using our network of Building Conservation Contacts to promote the use of then paper in many campus departments but also by specifically approaching the largest users of paper, our libraries and computer units, and convincing the manager who was in charge of public area printing to buy this paper exclusively --even though it would cost him about \$10,000 more a year. We had been working with him before on campus environmental issues, and he readily agreed. He said it was the right thing to do.

Hope this helps. I can be reached at 716-829-2515 if you need to discuss.

Walter Simpson

Recycled Paper Initiative Paper Testing Questionnaire

Name: _____ Phone Number: _____

Printer/Copier Manufacturer: _____ Model Number: _____

Manufacturer of Paper: **Badger Paper** Type: 4
Envirographic 100 (100%)
Rolland Paper _____ **New Life**
Repro (50%)
Rolland Paper 7 **New Life**
DP100 (80%)
Aspen 5 **Aspen 100**

(Trial)
Dates paper was used: From ____/____/____ To
____/____/____

Did you experience any paper jams with this/these paper(s)? 3 yes 13 no 1 once

If yes, how often? 1 a few times daily 1 a few times weekly _____ a few times monthly

Any other issues? 2 yes 9 no If yes, please describe

New Life 100 doesn't have good surface smoothness. Aspen 100 is too thin for double-sided use. _____

Would you consider using this paper on a regular basis? 14 yes _____ no 1 not sure

On average how many reams of copy paper does your office use per week?
10, 12, 20, 40 - 50 boxes, 7 - 10 reams

Does your office know how to duplex copy? 8 yes 2 no

If yes, do you duplex? 5 occasionally 2 often 1 always

How often do you reuse 1-sided waste paper? 1 never 7 occasionally 2 often _____ always

By using more recycled paper you help reduce the impact of deforestation and the air quality issues involved with using virgin pulp bleached paper. Knowing this would you be willing to pay more for 50%, 80% and/or 100% recycled paper? 9 yes 5 no

How much more? 10%, 5%, 20%, 5 - 10 %, not much, if permitted

Any other comments on this/these paper(s)?

No complaints, not for specific projects. Paper is thin, especially for double sided use. Willing to switch if paper works. No one noticed the difference. Increased recycled paper ought to be normal

Please return this questionnaire to: John Dube, Central Receiving @ jgdube@cisunix.unh.edu, or via fax at: 862-3886.

Thank you in advance for your help with this very important project.

Survey Summary and Notes

Envirographic 100 (100%)

Problems with paper jams: _____ yes 4 no

New Life DP100 (80%)

Problems with paper jams: 3 yes 4 no

Aspen 100

Problems with paper jams: _____ yes 4 no

- ⇒ **New Life DP100 doesn't have a strong texture, smoothness, or thickness as compared to Domtar.**
- ⇒ **Average weekly paper usage throughout departments: 7 - 12 boxes**
- ⇒ **Many of the departments who are willing to pay more for recycled paper agree that 5 - 10% over the standard price that they are paying for Domtar is reasonable.**

PAPER COMPANIES

Alliance Forest Products, Inc.
Appleton Papers Coated
Appleton Papers, Inc.
Arjobex
Avenor America, Inc.
Badger Papers Mills, Inc.
Beckett Papers
Beveridge Paper Co., Inc.
Boise Cascade Corp. White Paper
Bowater Inc.
Carolina Papers
Champion International Corp.
Consolidated Papers, Inc.
Crane & Co., Inc.
Crown Vantage
Daiei Papers (USA) Corp.
Decorated Paper Corp.
Domtar Papers
Donside

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Eastern Paper
Ecusta
Eddy Specialty Papers- Eastern
Region
Esleek Mfg. Co., Inc.
FiberMark
FiberMark, Technical Specialties
Division
Finch, Pruyn & Co., Inc.
Fletcher Paper Co.
Fort James Corporation,
Communications Papers
Business
Fox River Paper Co.
Fraser Papers , Inc.
French Paper Co.
Geo. A. Whiting Paper Co.
Georgia Pacific Printing Papers
Georgia-Pacific Office Papers
Gilbert Paper Co.
Gilman Paper Co.
Halifax Paper Board Company, Inc.
Hammermill Papers
Hampden Papers, Inc.
Hannover Papier
Hazen Paper Co.
Hennepin Paper Co.
Holyoke Card & Paper Co.
Inland Eastex, A Temple Inland Co.
Inter Lake Papers, A Company of
Consolidated Papers, Inc.
International Holographic Paper Co.
International Paper
Ivex Packaging Corporation
Kanzaki Specialty Papers
Klippan Fine Papers, Ltd.
Lowe Paper Co., Div. of Simkins
Industries Inc.
Luxana Fine Paper
Lyons Falls Pulp & Paper Inc.
Mead Paper
Miami Valley Paper, Inc.
Mirri Products
Mohawk Paper Mills, Inc.

Monadnock Paper Mills, Inc.
Morgan Adhesives Co., Printing
Products Div.
Nashua Specialty Coated Products
Neenah Paper Div., Kimberly-Clark
Corp.
New Leaf Paper
Nicolaus Paper Inc.
P. H. Glatfelter Co.
Pajco Products, Inc.
Paper Corporation of United States -
Prismacoat Div.
Parsons Paper Division, NVF Co.
Perkins-Goodwin Co., Inc.
Plainwell Paper Company
Potlatch Corporation
Repap Marketing.
Rexam DSI
Riverside Paper Co., Div. Riverside
Paper Corp.
Rolland Inc.
S. D. Warren Co.
Sappi Europe Ltd.
Scheufelen North America, Inc.
Simpson Paper Co.
Southworth Co.
Spexel, Inc.
Spinnaker Coating
Springhill Papers
Stora North America Corp.
Strathmore Papers
Sullivan Paper Co., Inc.
Temboard /A Tembec Division
Tullis Russell Papermakers
Union Camp Corporation
UPM-Kymmene Inc.
Wausau -Mosinee Paper Corp. --
Printing Writing Group
Weston Paper, Div. Crane & Co., Inc.
Westvaco Corp.
Weyerhaeuser
Willamette Industries, Inc.
Willamette Industries, Inc. Printing
Publishing Papers
Zanders Feinpapiere AG

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		RECYCLED PAPER		
Company	Distributors	Paper Type	Recycled %	
Badger	Lindenmeyr Munroe	Envirographics 50	50%	
	Unisource			
	Lindenmeyr Munroe	Envirographics 100	100%	
	Treecycle			
	Unisource			
	XpedX			
Domtar		Plainfield	30%	
Georgia Pacific	Unisource	GeoCycle	30%	
	XpedX			
	Treecycle	Eureka 50	50%	
	Treecycle	Eureka 100	100%	
Hewlett Packard		Office Recycled Paper	30%	
International Paper		Champion	30%	
		Great White	30%	
		Hammermill	30%	
New Leaf		Encore 30	50%	
		Encore 100 DP	100%	
		Everest Writing	80%	
		Everest Writing	100%	
Rolland		Evolution 50	50%	
		Evolution 100	100%	

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		New Life Dual Purpose 100	80%	
Weyerhaeuser		Recycled Multi-use	30%	
Terms				
Bleaching Process		Total Chlorine Free	TCF	
		Processed Chlorine Free	PCF	
		Elemental Chlorine Free	ECF	
		Hydrogen-Peroxide Bleached	HPB	
Acid		Acid Free	AF	
Composition		Post Consumer Content	PCC	
		Post Consumer Waste	PCW	

PAPER COMPANIES EMAIL LISTING			
<u>PAPER COMPANIES</u>	<u>WEB SITE</u>	<u>EMAIL ADDRESSES</u>	<u>PHON NUMBI</u>
Agripulp	http://www.agripulp.com	quote@agripulp.com	
Appleton Papers	http://www.appletonpapers.com	cust.svc.merchant@appletonpapers.com	800-533-
Arbokem Canada	http://www.agripulp.com	dp3order@agripulp.com	604-322-
Avenor	<i>Bought out by Bowater Corporation.</i>		
Badger	http://www.badgerpaper.com	bpm@badgerpaper.com	715-582-
Beckett Papers	<i>Bought out by International Paper.</i>		
Boise Cascade	http://www.bc.com/paper/paper.html	bcweb@bc.com	208-384-
Bowater	http://www.bowater.com	overstreepw@bowater.com	800-859-
Byron Weston	<i>Bought out by Crane & Co.</i>		
Champion	<i>Bought out by International Paper.</i>		
Domtar	http://www.domtar.com	printing@domtar.com	800-267-
Eastern	http://www.easternpaper.com	papersales@easternpaper.com	800-341-
Fort James	<i>Bought out by Georgia Pacific.</i>		
Fox River Paper	http://www.foxriverpaper.com	webmail@frpaper.com	920-733-
Georgia Pacific	http://www.gp.com		404-652-
Gilbert	http://www.gilbertpaper.com	gilbertpaper@mead.com	920-722-
	<i>Bought out by Mead Corporation.</i>		
Give Something Back	http://www.givesomethingback.com	salessupport@givesomethingback.com	800-261-
Gray's Harbor	http://www.ghplp.com/	mbarkstrom@ghplp.com	877-548-
GregBarber Company	http://www.gregbarber.com	greg@pcw100.com	516-413-
Hammermill	<i>Bought out by International Paper.</i>		

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Hewlett Packard	http://www.bstore.hp.com		773-399-
International Paper	http://www.internationalpaper.com	comm@ipaper.com	800-223-
Mead	http://www.mead.com	asg1@mead.com	800-345-
Mohawk Paper Mills, Co.	http://www.mohawkpaper.com	marketing@mohawkpaper.com	800-843-
Neenah	http://www.neenahpaper.com	neenah-assisy.neenahpaper@kcc.com	800-558-
	<i>Bought out by Kimberly-Clark Company.</i>		
New Leaf	http://www.newleafpaper.com	info@newleafpaper.com	888-989-
Office Depot	http://www.officedepot.com		888-463-
Office Max	http://www.officemax.com		800-283-
Rolland	http://www.rolland.ca	info@rolland.ca	450-569-
Scheufelen North America	http://www.scheufelenna.com	beths@scheufelenna.com	800-220-
Staples	http://www.staples.com	products@orders.staples.com	800-378-
StoraEnso	http://www.storaenso.com		888-807-
Wausau	http://www.wausaupapers.com	sbean@wausaumosinee.com	401-245-
WB Mason	http://www.wbmason.com		508-586-
Weyerhaeuser	http://www.weyerhaeuser.com	fpinternet@weyerhaeuser.com	253-924-
Williamette	<i>Bought out by Weyerhaeuser.</i>		
Xerox	http://www.xerox.com		800-822-

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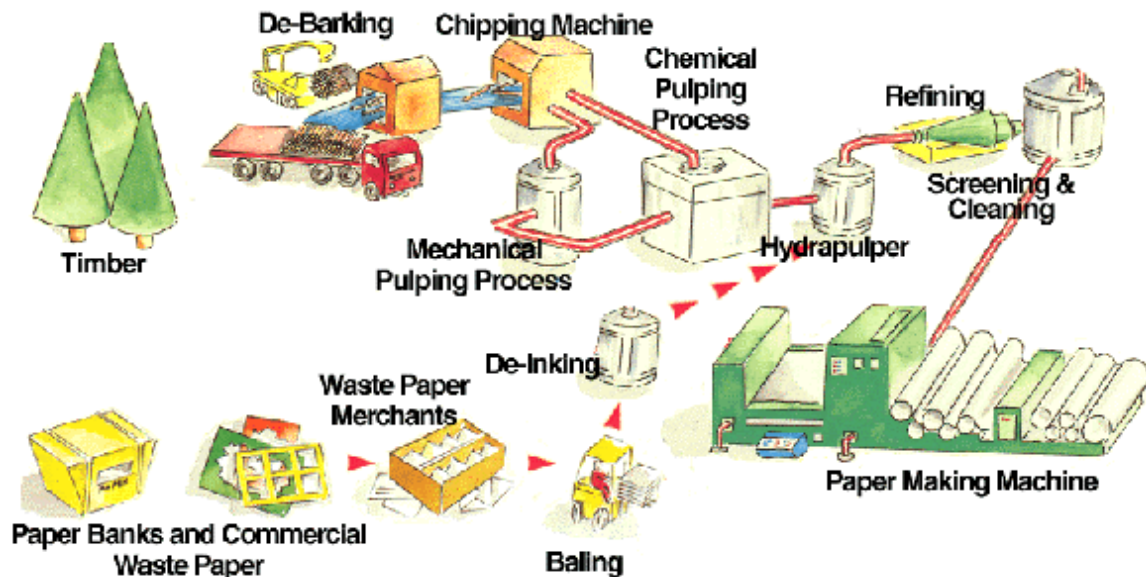
		PAPER INDEX		
		Recycled	Post Consumer	
Paper Type	Parent Company	Content (%)	Waste (%)	Chlorine Free
Aspen Xerographic	Boise Cascade	30%	30%	
Champion Multipurpose	International Paper			
Champion Multipurpose Recycled	International Paper	20%		
Cascade X-9000	Boise Cascade			
Cascade Xerographic	Boise Cascade			
Copy Saver Dual Purpose	Paper Corporation of U.S.	30%		
Domtar Recycled Copy	Domtar	30%	30%	
Envirographic 100	Badger Paper	100%	100%	100 %PCF
Exact Multipurpose Replacopy	Wausau Paper	30%	30%	
GeoCycle	Georgia Pacific	30%		
Great White Recycled Multipurpose	International Paper	30%		
New Life DP 100	Rolland	80%	60%	100% PCF, 20% TCF
Recycled Husky Xerocopy DP	Weyerhaeuser	20%	20%	
Recycled Relay MP	International Paper	30%	30%	
Windsor Copy Recycled	Domtar	20%	20%	
Terms	Bleaching Process		Total Chlorine Free	
			Processed Chlorine Free	
			Elemental Chlorine Free	

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			Hydrogen-Peroxide Bleached	
	Acid		Acid Free	
	Composition		Post Consumer Content	
			Post Consumer Waste	

PAPER PRODUCTION CYCLE

⇒ **Consumer Market:** used, re-used,



- ⇒ **Timber:** starts out in the forest as virgin trees
- ⇒ **De-Barking:** bark is taken off the logs and used for fuel or sold as fertilizer
- ⇒ **Chipping:** breaks up the large logs into pieces that are more manageable, the pieces that are too small or large are disposed of, lignin is removed
- ⇒ **Pulping:** mixed with water and chemicals, “cooked” by heat and pressure
- ⇒ **Paper-making machine:** rolled into sheets and cut to market sizes

- and put into recycle bins
- ⇒ **Recycled-material Collection Centers:** collect paper from public and commercial sector bins
- ⇒ **Centers:** collect paper from public and commercial sector bins
- ⇒ **Waste paper merchants:** buy post-consumer paper, paper separating into grades, and baled appropriately
- ⇒ **De-inking/Pulping:** the ink, staples, and other imperfections are removed as the paper is turned back into pulp; after this step it is put back into the process at @step #5

GLOSSARIES PAPER MANUFACTURING

Chemical Pulp: pulp produced in the course of paper manufacturing through one of various processes, in which wood chips are cooked with chemicals to remove *lignin* and other unwanted constituents. The two major processes of chemical pulping are *sulfate* and *sulfite*.

Lignin: the strong, resinous substance that gives structure to trees. It is necessary to extract lignin from wood chips in the pulping process to make good quality, non-deteriorating paper.

Mechanical Pulp: ground wood pulp produced in the course of paper manufacturing by machines that grind logs into fiber. The *lignin* isn't removed so most of the wood is actually made into paper, but the resulting paper is not strong, so it's used primarily for newsprint and other papers that don't need to last long.

Sulfate Process (Kraft): *chemical pulping* process in which wood chips are cooked with sodium sulfide and sodium hydroxide to remove *lignin* and other unwanted constituents. This is the predominantly employed chemical process for making fine papers. It results in a stronger paper than made by the *sulfite* process.

Sulfite Process: *chemical pulping* process in which wood chips are cooked with acids to remove *lignin* and other unwanted constituents.

Paper Features

Basic Size: standard length and width for a given paper grade expressed in inches, according to the classification system used in the U.S. The following are the *basic sizes* for common *grades*: *book* and *text*, 25 x 38; *bond*, 17 x 22; *cover*, 20 x 26.

Basis Weight: the weight given in pounds for a *ream* of paper that has been cut to a standard size (or *basic size*). The standard size varies according to the *grade* of paper. For example, in the case of a 20 lb. *bond* paper, the designated weight derives from the fact that a *ream* of that *bond* paper, if cut to the size of 17 x 22 inches, would weigh 20 pounds. This system of paper weights is used in the United States.

Bond: *grade* of paper made primarily for office use. (*Basic size* is 17 x 22 inches.)

Book: *grade* of paper similar to *text* paper. These two grades are classified by the same *basic size*, 25 x 38.

Brightness: property of reflectivity measured under controlled conditions. Generally, offset papers have brightness expressed as values in the range of 75 to 90, but papers can have brightness values higher than that range. Fluorescent dyes can be added to achieve very bright papers.

Coated Paper: paper to which a surface coating is applied to one or both sides. Clay is a common additive used in this process. Images printed on coated papers can have sharper definition.

Cover: heavy, stiff *grade* of paper used for covers. (*Basic size* is 20 x 26.)

Film Coat: slight coating on *uncoated papers* applied to improve ink retention and printability.

Finish: surface feature of paper ranging from smooth (such as vellum and eggshell) to rough (such as linen). In coated papers, matte (dull) and gloss (shiny) finishes result from the coating substances.

Grade: any of various paper categories based on features such as function, quality, typical weight range and appearance. Paper grades include: *text*, *cover* and *bond*.

Grammage: the weight of one sheet of paper that has been cut to one square meter in area. The same area (expressed in g/m²) is used for all paper *grades*. This system of paper weights is used in most of the world.

Opacity: property of paper by which *show-through* can be reduced to a minimum.

Ream: 500 sheets of paper.

Show-through: unwanted property of some papers that allows the printed material on one side of a page to show through to the other side.

Text: high quality *grade* of paper used for books, magazines, catalogs, pamphlets and brochures.
(Basic size is 25 x 38.)

Uncoated Paper: paper to which no coating has been added. Uncoated papers often include other additives such as sizing to make the paper water-resistant and stronger.

Printing (Traditional Processes Using Plates)

Blanket: a rubber or rubber-like covering for the blanket cylinder in *offset lithography*. The image to be printed is transferred from the plate to the blanket and then to the paper.

Blanket Wash: solution used to clean the *blanket* and other parts of the printing press.

Bleed: printed image in which the ink is deliberately printed off the edges of the page.

Die-cutting: a process in which a die is pressed into the paper to cut a shape. (The die is a strip made of metals.)

Dryography: see *Waterless Printing*.

Duotone: a two-color *halftone* reproduction.

Embossing: a process in which an image is pressed onto paper.

Flexography: A system of printing on a rotary press employing water-based ink, used especially for printing on plastic, paper, or cardboard.

Gravure: a printing process in which intaglio plates are used. (The image is sunk below the plate's surface). Because of the high cost of the plate, it is utilized for large runs

Halftone: reproduction of continuous-tone images like photographs through a screening process in which the image is transformed to a pattern of dots. When the image is printed, the dots seem to merge and are not visible as separate dots unless viewed under a magnifying glass.

Letterpress: a printing process using plates, on which image areas are raised above non-image areas. When inked, image areas print directly onto paper.

Makeready: the stage in which the press is prepared for printing. In *offset lithography*, plates are attached to the press, ink and *fountain solution* are made ready, and the printing is tested out.

Offset Lithography: the prevailing printing process in the U.S. The plate is flat, with no raised or intaglio areas. The principle that oil and water don't mix keeps image areas separate from non-image regions of the plate's surface: oil-based ink is confined to the image area while the non-image area is wet with a non-oil-based solution. The plate doesn't print directly onto the paper. The image transfers from the plate to the *blanket* and then onto the paper. That's why it's called "offset."

Matching System: a system for standardization of printing ink colors. Each color, which has a number assigned to it for identification, has an exact formula. PANTONE® is a registered trademark.

Postpress: the stage of the printing process which takes place after the actual printing so includes operations such as trimming and binding.

Prepress: the stage of the printing process which takes place before the actual running of the press. In *offset lithography*, it includes the making of the plates, a step which conventionally requires film processing chemistry. In digital prepress, the film developing step is replaced.

Process Color Printing: printing process that reproduces full-color artwork or photos from the use of halftone plates. For the common four-color process, four

plates are used, one for each of the subtractive primaries, Cyan, Yellow and Magenta, plus Black.

Sheetfed Press: type of press used in *offset lithography*. Single sheets of paper are fed into the press.

Volatile Organic Compounds (VOCs): organic compounds that tend to evaporate at ambient temperatures. In high concentrations and in the presence of sunlight and nitrogen oxides, they form ozone-rich smogs.

Waterless Printing: (dryography) is a printing process that does not require *fountain solution*.

Web Press: type of press used in *offset lithography*. The press prints onto a continuous sheet of paper in a roll. The two types of web presses are: heatset, which has a unit for drying ink and coldset (non-heatset), which doesn't have a drying unit.

INKS

Binder: term referring to various ink additives that facilitate the attachment of ink to paper.

Dye: coloring substance that is soluble in liquid. Inks are sometimes made with dyes.

Metallic Ink: ink that contains powdered metals, such as aluminum and copper alloys, to create a metallic luster.

Pigment: coloring substance that is not soluble in liquid. For the most part, inks are made with pigments.

Toner: generally refers to a dry substance made with thermoplastic polymers which is heat-fused to paper in digital processes (copying and laser printing). According to some users, the term is reserved exclusively for processes in which an image is copied (on a copy machine); according to others, toner refers to the substances used for printing in digital processes, including liquids for inkjet and dry substances for laser printing.

Vehicle: the liquid base of ink that carries the pigment. The vehicle (also referred to as carrier) makes it possible for pigment to be applied to paper. Inks can be petroleum-based or vegetable-based or a combination of the two.

PAPER CONTENTS

Acid: chemicals (with low *pH*) traditionally present in paper

Alkaline: refers to the contents of high *pH*, archival paper, to which alkaline substances such as calcium carbonate are added so that the paper will not deteriorate for a very long time

Deinked: waste paper from which inks, adhesives, coatings, etc. have been removed by mechanical and sometimes chemical processes as part of recycled paper production.

Mill Broke: paper that's damaged at the mill. It's not considered *pre-consumer* or *post-consumer waste*.

Nondeinked: waste paper from which ink, etc. has not been removed during the process of recycling. (Ink specks may remain in the paper.)

pH: a measure of acidity or alkalinity. On the scale from 0 to 14, a value of 7 is neutral. Values decreasing from 7 represent an increase in acidity and values rising from 7 indicate increasing alkalinity.

Post-Consumer Waste: paper that has reached its intended end user and after use has been separated out from other solid waste for recycling. (Often abbreviated as PCW or as PC).

Pre-Consumer Waste: waste from industrial manufacturing processes (The term's definition has a gray area: some people exclude printers' waste from this, although the strictest form of the definition includes waste from all retailers including printers.)

Recovered Materials: includes mill converting scrap fibers (but not mill broke), *pre-consumer waste*, *post-consumer waste*.

Recyclable: refers to paper (or other materials) that can be recycled. (It can be a problematic term because what can be recycled varies from place to place; e.g. *coated papers* can be recycled through some collection facilities but not through others.)

Recycled Paper: often loosely defined term; general label to refer to papers that contain some percentage of re-used fiber. This re-used fiber may only be mill wastes from paper manufacturing processes, which have been used in papermaking for a long time. If mill waste is the only recycled content of a paper, that paper adds nothing new towards efforts in forest conservation and waste reduction.

Tree-free Paper: paper made from fibers that do not come from trees. Some papers are made from a combination of tree-free fibers and tree-derived materials such as *post-consumer wastepaper*. Tree-free alternatives include hemp, kenaf, agricultural residues and bamboo.

Virgin Paper: paper made straight from new pulp. (The term usually refers to tree-based material, but sometimes is used to refer to tree-free fiber.)

PAPER BLEACHING/PROCESSING

Bleaching: in pulping, the process of whitening the pulp so that the resulting paper it won't be the color of trees. Chlorine, which is also effective in extracting *lignin* that remains after *chemical pulping*, is the traditionally used bleach, although sometimes chlorine derivatives are used or various non-chlorinated chemicals.

Chlorine Free: sometimes used as cover term to refer to *totally chlorine free* (TCF) and/or *processed chlorine free* (PCF). (Necessary to verify that it's not being used loosely to mean *elemental chlorine free* ECF.)

Elemental Chlorine (EC): chemical traditionally used to bleach paper.

Elemental Chlorine Free (ECF): paper made with bleaching process in which chlorine dioxide or other chlorine compounds are used rather than pure chlorine.

Processed Chlorine Free (PCF): sometimes called secondarily chlorine-free (SCF) paper processed with oxygen and oxygen compounds as bleaching agents. The recycled portion of PCF papers may or may not have been bleached with chlorine or chlorine compounds when first manufactured or in prior recycling. It is not possible to determine whether chlorine or chlorine derivatives have been used in the paper's past. These papers contain up to 100%-recycled fiber.

Totally Chlorine Free (TCF): paper made without use of any chlorine or chlorine compounds. Processes use oxygen, oxygen compounds. TCF papers are made with virgin wood fibers and/or tree-free fibers. Papers made of 100% post-consumer waste (PCW) cannot be designated TCF.

Totally Effluent Free (TEF): systems at paper mills with closed-loop cycle in which no effluent empties into the environment

SUPPORTING DOCUMENTS

- ⇒ RECYCLED PAPER INITIATIVE AT UNH WEB PAGE
- ⇒ TNH ARTICLE “STRIDES MADE TOWARD RECYCLED PAPER GOAL.”
- ⇒ USNH PURCHASING PAPER BID PROPOSAL
- ⇒ CHRIS SCHADLER, UNH DEPARTMENT OF NATURAL RESOURCES
- ⇒ PAUL FISHER, UNH DEPARTMENT OF PLANT BIOLOGY
- ⇒ SAMPLES OF COPY BOND PAPER WITH POST-CONSUMER CONTENT (50% - 100%)