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CPBIS

Newsletter of the Center for Paper Business and Industry Studies, A Sloan Foundation Industry Center
500 Tenth Street NW ◆Atlanta, GA 30332 ◆ http://www.cpbis.gatech.edu/ ◆Editor: Tom McDonough

Vol. XIII, No. 6 **September 26, 2013**

Occupational Safety in the Pulp and Paper Industry

By Pat McCarthy, Director

Pulp and paper mills are large, capital intensive structures that embody complex industrial processes. The very complexity of the mills, the nature of the chemicals used, the increasing size and speed of key equipment, and the noise inherent in the production process all pose safety risks to mill personnel. Recognizing this, the industry is generally careful to comply with Occupational Safety and Health Administration safety standards, maintains systems and equipment, and provides safety training for its employees. In spite of these preventive measures, injuries and fatalities sometimes occur, whether from human error or unexpected mechanical and system failures.

Occupational Fatal Injuries The Occupational Safety and Health Administration (OSHA), Department of Labor, collects detailed information on all work-related fatal injuries. In 2011, there were 4,693 work-related fatalities in the U.S., down from 5,840 (before the great recession) in 2007 and 4,551 in 2009 (in the midst of the great recession). Looking at rates, the number of fatal injuries per 100,000 full time equivalent employees was 3.5 in 2011, significantly better than a 4.0 rate in 2007 and equal to the 3.5 rate in 2009.

Among the highlights from the 2011 work-related fatal injury report: The riskiest industry is agriculture, forestry, fishing and hunting, with an occupational fatal injury rate of 24.9, followed by mining (15.9), transportation and warehousing (15.3), and construction (9.1). At 2.2, manufacturing's occupational fatal injury rate was much lower, indicating a considerably safer work environment. Relative to all workers, work-related fatal injury rates were lower for those less than 44 years of age but higher for workers 45-54 (3.8 rate), 55-64 (4.4 rate), and 65 and older (11.0 rate)

Among the specific occupations with the highest number of fatal injuries per 100,000 full time equivalent workers were logging (104.0), refuse and recyclable material collectors (36.4), and driver/sales workers and truck drivers (24.5). Ninety-two percent were males. Forty-one percent involved transportation incidents, 57% of which were highway collisions with another vehicle. Nine percent involved exposure to harmful substances

The U.S. pulp and paper industry experienced nine occupational fatal injuries in 2011, which implies that the number of worker fatalities per 100,000 full time equivalent employees for the industry was 2.21, virtually equivalent to the average for all of manufacturing in 2011 and a tiny bit smaller than the 2.24 rate in 2009. The total of nine fatal injuries is down from 17 in 2003 and 2006 and 10 in 2009. Of the nine fatal injuries, all were single-fatality incidents, seven were in the converting sector, of which three were in paperboard container manufacturing and one in the paper bag and treated and coated manufacturing sector. Eight were male. Seven occurred at the plant, one on the industrial premises, and one was transport-related, on the interstate. One fatal injury involved operating machinery and three occurred during construction, repair, or cleaning activities. Note that subsector data and detailed data on fatal injuries are not always reported due to privacy and reliability concerns.

Occupational Non-Fatal Injuries For all private industry, Figure 1 depicts the total number of non-fatal injuries and Figure 2 the rate of injuries and illnesses per 100 full time equivalent workers. Between 2003 and 2011, the total number of injuries in the private sector fell from 4.4 million to just under 3 million. In absolute numbers, one would expect the number of non-fatal injuries to fall because of the great recession.

Yet from Figure 2 the number of non-fatal work-related injuries per 100 full time equivalent workers also fell, from 5.0 in 2003 to 3.5 in 2011, which implies that overall safety in workplaces has improved.

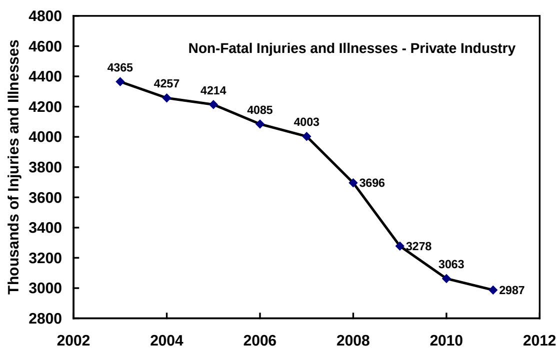

Figure 1. Non-Fatal Injuries and Illnesses – Private Industry

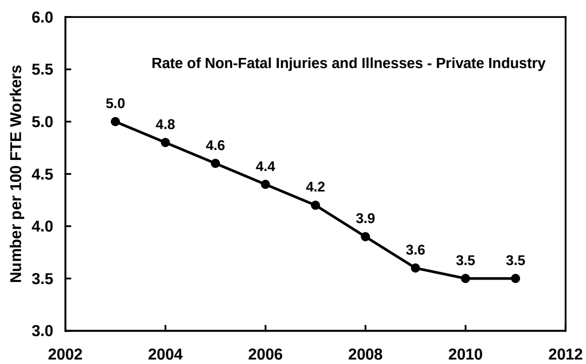

Figure 2. Rate of Non-Fatal Injuries and Illnesses – Private Industry

Figures 3, 4 and 5 report the same information for the pulp and paper industry. Total occupational non-fatal injuries fell significantly from 25.6 thousand in 2003 to 13.6 thousand in 2011. In some contrast to private industry overall, the injury and illness rate initially rose from 4.8 to 4.9 between 2003 and 2004 after which there was a steady decrease to 3.2 in 2009. In the past two years, the rate increased a bit to 3.4. Figure 5 depicts the number of injuries per 100 full time equivalent workers, i.e. excluding illnesses from the calculation. The behavior of the non-fatal injury rate is lower, as expected, but reflects a similar pattern – increasing between 2003 and 2004, falling between 2004 and 2009, and increasing in 2010 and stay at the level in 2011. Overall, the non-fatal injury rate decreased from 4.4 in 2003 to 3.1 in 2011. Similar to private industry, the pulp and paper industry has experienced significant improvements in worker safety, both in total numbers and in the rate.

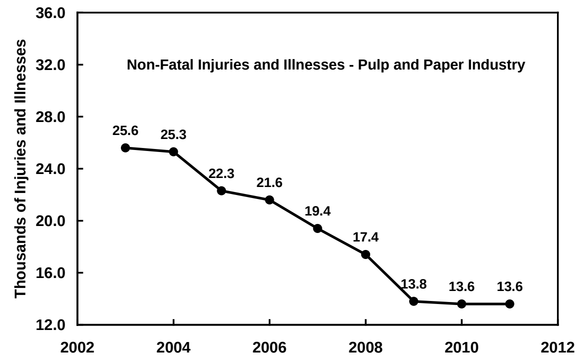

Figure 3. Non-Fatal Injuries and Illnesses – Pulp and Paper Industry

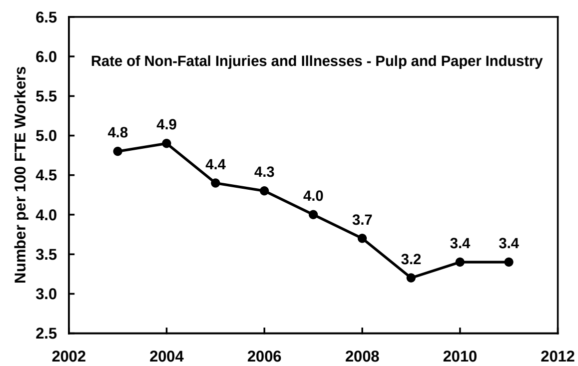

Figure 4. Rate of Non-Fatal Injuries and Illnesses – Pulp and Paper Industry

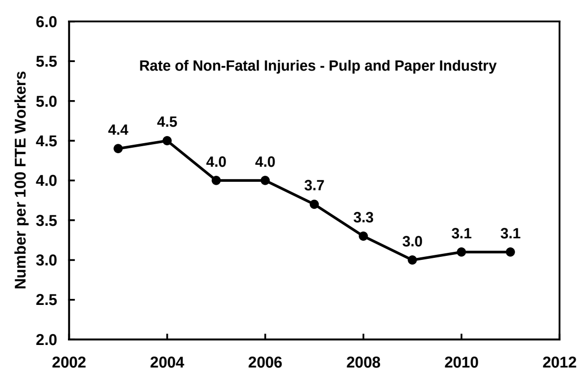

Figure 5. Rate of Non-Fatal Injuries – Pulp and Paper Industry

Among the types of pulp and paper industry work-related illnesses, in 2011 there were 2,700 cases of skin disease, no cases of respiratory illnesses, and

16,900 cases of hearing loss. The absence of respiratory cases in 2011 compares with 2,200 cases in 2011 and 800 cases in 2010. Recordable cases of skin disease fell from a high of 2,900 in 2003 to 900 in 2009. The 2,700 cases in 2011 is three times the 2009 low and argues for more emphasis in this area. The 16,900 cases of hearing loss in 2011 is much better than the 26,700 cases recorded in 2008 yet not much different than the 15,500 cases recorded in 2004.

Trend Indicators from Industry Intelligence Inc.

Industry Intelligence Inc. has provided market intelligence to more than 600 companies worldwide since it began as Forestweb in 1999. Industry Intelligence delivers a daily report featuring news of the paper and forest products industries. For your subscription visit: http://www.industryintel.com

Below is a selection of recent headlines chosen to mirror significant trends in and around the paper and forest products industries.

Morningstar: PCA's proposed acquisition of Boise will significantly increase PCA's presence in western US; PCA may see Boise's paper machines as near-term source of cash flow with longer-term option to convert to containerboard production

If the $1.995 billion acquisition goes forward as planned, PCA will increase its packaging mill capacity by an estimated 1,100 tons, or about 42%, and will have a market share more in line with number-three Georgia-Pacific's 10%.

UPM launches renewed apprenticeship programs at its Kymi and Kaukas pulp mills in Finland to address concerns about high average age of company's current workforce

”The average age of our personnel is high and we want to engage the training of the new working generation in time before current generations begin to retire”, says Juha Kääriäinen, General Manager of Kymi and Kaukas pulp and paper mills.

RBC Capital Markets: Domtar's plan to raise NA uncoated freesheet prices from October marks first broad-based increase in more than two years, follows IP's announced Courtland mill closure; IP, Boise, GP, Glatfelter expected to follow with similar hikes

RISI is reporting that the No. 1 NA uncoated freesheet (UFS) producer, Domtar, has informed customers it plans to raise NA UFS prices by $40–60/ton (5–6%) from mid October. This initiative would be the first broad-based increase in more than two years and follows on the announcement last week by the No. 2 NA producer, International Paper, that it will close its Courtland, AL mill (8% of NA UFS capacity) by the end of March.

New report analyzing global distribution of bleached chemical market pulp shipments by end-use sector shows tissue industry consumed 32% in 2012, making it the most important sector for first time, surpassing woodfree papers: Hawkins Wright

China is the only market in the world where the woodfree industry remains the largest consumer of bleached chemical market pulp.

Biofuels company Cellufuel's demonstration plant in Brooklyn, Nova Scotia, expected to start up in February after company receives C$1.5M provincial loan; facility will convert wood into biofuel, consume about 6,000 tonnes of fiber/year

Private investors supplied the remaining $2.5 million in funding for the project. Meteghan, Nova Scotia is being considered as a possible site for a $40 million commercial plant with a capacity of 20 million liters per year.

Europe's paper and board recycling rate hits 71.7% in 2012, while paper consumption falls 13% to same level as 1998, says European Recovered Paper Council

Paper consumption in Europe has dropped by 13% to the level of 1998, but the amount recycled is 1.5 times higher than in 1998.

Crane & Co. starts up 1 million kWh hydroelectric turbine for its paper mill in Dalton, Massachusetts, after investing US$1.5M over 10 years to rebuild electric-generating capability, which will save mill's electricity costs, lower its GHG emissions

The system is expected to reduce the mill’s electricity costs, resulting in an investment payback period of six years. The mill’s greenhouse gas and nitrous oxide emissions should be lowered by 1.4 million lb and 12,000 lb, respectively.

Deutsche Bank: GP's closure of uncoated freesheet paper machine at Crossett, Arkansas, tissue mill won't by itself return market to balance; while news is encouraging for supply/demand dynamic, more industry capacity needs to be removed

The machine’s estimated capacity is ~93K tons, representing just under 1% of NA uncoated freesheet capacity. This leaves GP (#4 NA producer) with ~800K tons of estimated uncoated free sheet capacity

(~8% of NA market) at its Camas, WA and Port Hudson, LA mills.

Thailand-based non-tree pulp manufacturer Thai Gorilla Pulp receives order from Thai Airways International for several million in-flight boxes, says Thailand is one of the best places in Asia for innovation like its technology based on palm oil waste

TGP invented and has continuously improved the new non-tree pulp manufacturing technology, based on the use of palm oil waste.

California-based biofuels developer Cool Planet Energy Systems to build its first commercial biorefinery in Alexandria, Louisiana, with construction expected to finish by end of 2014; company planning to build small scale bio-refineries across US

Cool Planet Energy Systems, a developer of small scale biorefineries that convert non-food biomass into gasoline, jet fuel, and soil enhancing biochar, announced the location of their first commercial biorefinery in Alexandria, Louisiana.

Statistics Corner: UK Paper Consumption

As illustrated in the figure below, consumption of paper and board in the UK, after peaking at 12.9 million tonnes in 2000, declined to 10.2 million in 2011, a volume about equal to that of 1993. Consumption in 2012 was 10.0 million tonnes.■

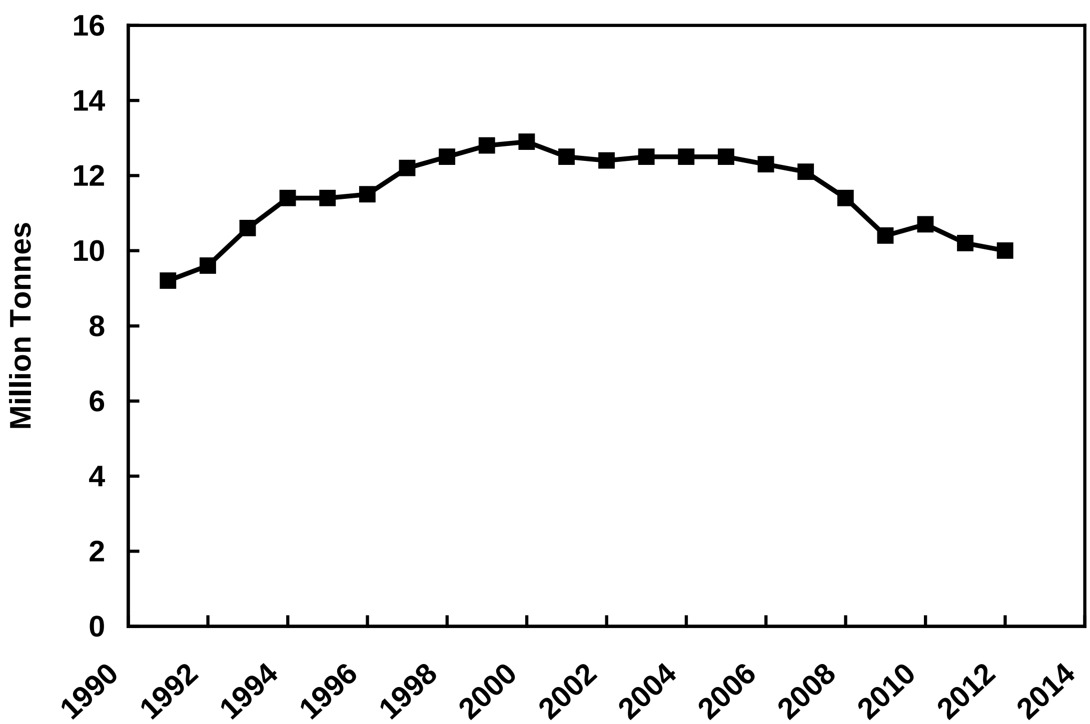

Figure 1. UK Paper and Board Consumption *(Source: Confederation of Paper Industries)*