

# Protection Survey



**Fire Protection Solutions**  
668 N. Coast Highway, Suite 518  
Laguna Beach, CA 92651  
(866) 777-FIRE

## Location Surveyed

### **Modern Papeles**

**500 North Fourth Street  
Bruton Town, SD 43812**

Survey By: **John Doe**  
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Houston, TX 77065  
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## Conferred With

John Renbourn, Operations Manager  
Bert Jansch, General Mill Supt.  
Jackie McShee, General Maintenance Supt.  
Terry Cox, Safety Director

Survey: **July 16, 2002**

## Recent Changes and Comments

- A pilot study for installing a second turbine/generator unit has been started. Preliminary plans will be forwarded for FPS' review as soon as they are available.
- A fire occurred in the No. 1 Paper Machine hood on November 2. The fire was extinguished with the operation of 2 sprinklers. The facility intends to increase the cleaning frequency for this machine to reduce future fire potential.

## Construction

Total Building Area: 263,900 ft<sup>2</sup>  
Percentage Sprinklered: 57%  
Percent Needing Sprinklers: 4%

The main part of this complex houses the paper mill. The paper mill consists of a group of communicating buildings. These buildings house paper machines 1 and 2, roll storage area, rail siding, the old power house, pulp and chemical mixing mills and the offices. This group of buildings is about 200,000 ft<sup>2</sup>, all of noncombustible construction.

Individual major buildings are:

- The Cogen Building is 15% sprinklered, 100% non-combustible with approximately 142,000 ft<sup>2</sup>.
- The No. 1 & 2 Paper Machine Building is 50% sprinklered, 100% noncombustible with approximately 133,000 ft<sup>2</sup>.
- The No. 3 Paper Machine Building is 50% sprinklered, 100% noncombustible with approximately 78,000 ft<sup>2</sup>.
- The Roll Paper Warehouse is 100% sprinklered, 100% noncombustible with approximately 45,000 ft<sup>2</sup>.
- The Biomass Building is 10% sprinklered, 100% noncombustible with approximately 63,000 ft<sup>2</sup>.
- The Bale Storage Building is 100% sprinklered, 100% noncombustible with approximately 40,000 ft<sup>2</sup>.
- There are several detached buildings: the power house (24,000 ft<sup>2</sup> ground floor, 54,000 ft<sup>2</sup> total), the screen building (3,500 ft<sup>2</sup>), the hogger building, the Copeland building (4,000 ft<sup>2</sup>), and evaporator building (2,400 ft<sup>2</sup>). These buildings are of noncombustible construction.

## Occupancy

This paper mill processes wood chips and recycled paper to produce medium paper both for use in its domestic corrugator plants and for outside sales. This plant has two 550 TPD continuous digesters for chips. Pulping is accomplished using a semichemical process using mechanical separation and green liquor and a black liquor recovery process using a fluidized bed furnace. The black liquor is processed in a Copeland Reactor to recover sodium carbonate. Paper is produced on two fourdrinier type machines producing a total of 450 tons/day. Finished rolls are stored in a holding area and shipped by rail or by truck.

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### **Protection**

#### Private

- The main building sprinkler systems are hydraulically designed: The south three bays (200') of the building, excluding the west two bays (80'), use 17/32", 286°F sprinklers with original design of 0.35/4500 gpm/ft<sup>2</sup>/ft<sup>2</sup>. The present water supply shows this area can provide 0.32/4500 gpm/ft<sup>2</sup>/ft<sup>2</sup> with no hose stream use. All of the 20' high roll paper storage is within this area.
- The rest of the building uses 1/2", 212 F sprinklers with original design of 0.25/3000 gpm/ft<sup>2</sup>/ft<sup>2</sup>. This density is available with 500 gpm hose stream use. Most of the building has palletized cardboard flats storage to 18' high.
- Water supply is via a well-gridded yard main system fed by three fire pumps taking suction from an open-top 1,000,000 gallon divided reservoir. 95% of the mains are new 10" ductile iron. Most of the areas needing sprinkler protection have protection. Systems are both wet and dry; conveyors have deluge protection. There are 217 control valves and 72 risers.

#### Public

- The plant is 1 mile from a full-time paid fire department station.
- The city water system is a gravity-fed system supplemented by automatic booster pumps. Mains are 10" and well-gridded. Hydrants are dry-barrel, spaced every 300' along all public streets. There are hydrants near each of the 2 plant fire department connections.

### **Exposure**

The north end of the property borders a privately owned forest with potential for fire during the late summer months. There are no other exposures.

### **Surveillance**

Surveillance: Watchman w/ partial signaling system

Surveillance Adequate? No

The location's fire alarm service consists of monitoring fire pump running alarms, suction tank level, and temperature. The signals are monitored in the power house control room. The control room is attended 24 hours/day, 365 days/year. No alarms are automatically transmitted off-site or to the Coshocton full time fire department.

The contracted guard service (Moline Security Systems) makes recorded rounds which includes 45 locations throughout the mill. One round is done during the first shift (7 AM to 4 PM) and two rounds are performed per shift after 4 PM (2nd and 3rd shifts). During each round, special hazards are noted, the fire pump house is inspected, and eleven sprinkler riser pressure readings are taken.

**Other Perils** Flood, tornado, hurricane, earthquake, leakage, vehicle damage, vandalism, riot, settling, collapse. No comment indicates no exposure.

### **Survey Testing**

- No water testing was possible this survey due to freezing weather. All fire system valves and risers were visited to confirm they are in service.

### **Plant Loss Control Programs**

Normally, the sprinkler system valves are inspected and physically tried monthly. The fire pumps are run at churn weekly. Water flow alarms are tested monthly at the risers. The two-inch main drains are flowed monthly. Fire extinguishers are being visually inspected monthly but not necessarily serviced monthly, annually nor periodically (every 5 years hydro-tested) per corporate standards. The building and the operations are being inspected monthly for housekeeping and safety issues. Documentation has revealed that frequencies have not been

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**Plant Loss Control Programs**

maintained and improvements are necessary (Rec 02.01). The cutting and welding program is well maintained with documentation maintained within the maintenance department. Sparing practices and emergency repair plans are in written form and maintained periodically.

**Flood Exposure**

Flood Zone:   C   Flood Elevation:  754.0  Plant Elevation:            Flood PML                    \$0

The mill is located in a Zone X unshaded and is not subject to flooding per FIRM Map 390089-0005B, Effective Date of 12/18/86. However, the north baled waste paper yard is located in a Zone AE (100 year Elevated Zone) where the area has been elevated or built-up to equal or be above the 100 year flood occurrence level (754 ft. ASL). Water damage (if any) would be minimal to any yard storage.

**Loss Estimates**

**Estimated Values:** PD: \$350,000,000 BI: \$35,000,000 TIV: \$385,000,000

**Property Damage Estimates**

PML PD:

Assume a fire under Paper Machine No. 2 (larger of two paper machines which are on separate ends of the mill) involving broke and hydraulics with damage to the entire dry end resulting in 15% damage to the machine. No. 2 Machine is 169" wide x \$200,000/inch x 0.15 (dryer section) = \$5,070,000. The fire would spread to adjoining storage area and involve \$5,000,000 of stock, equipment, and building damage. The total loss would then be \$10,000,000 or 10/208 = 4.8%.

MFL PD:

In the remote occurrence of the Copeland Reactor experiencing an explosion, its replacement and peripheral damage to adjacent equipment would constitute a maximum foreseeable loss of \$60,000,000.

**Business Interruption Estimates**

PML BI:

The paper machine could take 3 months to repair, depending upon the number of dryer rolls damaged. There are 2 paper machines, so there would be a 50% interruption for 3 months = 0.50 x 0.25 x 52,601,000 = \$6,575,125 or 6.6/52.6 = 12.5%.

MFL BI:

The replacement of the Copeland Reactor would require at least 6 months. This equate to \$15,000,000.

**Estimates Summary**

<u>Probable Maximum Loss</u>		<u>Maximum Forseeable Loss</u>	
PDPML:	\$10,000,000	PD MFL:	\$60,000,000
BIPML:	\$6,575,000	BI MFL:	\$15,000,000
<b>Total Probable Maximum Loss:</b>	<b>\$16,575,000</b>	<b>Total Maximum Forseeable Loss:</b>	<b>\$75,000,000</b>