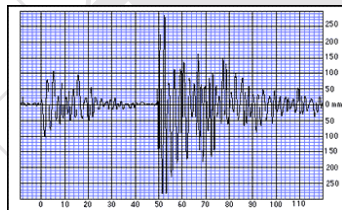


# Emergency Engineering Assistance

Emergency situations arise in pulp and paper mills that require fast, innovative, engineering solutions to protect people, equipment, and production. **Harris Group Inc. responds on a moment's notice to help our customers deal with these emergencies.**

- ❑ Harris Group Inc. assisted a customer to empty a continuous digester after a failure of the outlet device. Options were evaluated, the blow lines and tanks were inspected, additional piping supports were recommended, modifications to the blow tank including knockdown showers and vacuum breakers were installed. Harris Group worked around the clock with the customer and contractors to make the modifications to ensure that the digester was emptied without risk to personnel, equipment, or the environment.
- ❑ An air compressor overheated and the oil exploded causing significant equipment and structural damage in the area. With the mill shutdown, Harris Group was called in to assess the damage to the structures and make recommendations to allow entry into the area by clean up and repair personnel.
- ❑ A mill experienced a runaway reaction while cleaning an evaporator body with nitric acid that caused significant equipment and structural damage. Harris Group was called in to assess the structural and equipment damage and recommend repairs to get the system back on line. Harris Group reviewed system safety devices and issued recommendations for additional protection. In addition, we coordinated laboratory trials with alternate cleaning agents, designed a system for cleaning, and issued operating specifications for safely cleaning evaporators. (over)
- ❑ After a significant earthquake in the Pacific Northwest, Harris Group sent structural engineers to a number of our customers' mill sites within hours of the quake to assess the integrity of the buildings.
- ❑ During a maintenance inspection, it was found that a batch digester discharge nozzle was severely eroded and needed replacement rather than overlay. Harris Group reviewed the application and developed a standard detail for the replacement nozzle to meet the required service codes.



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❑ A mill decided to use an existing surplus scrubber to act as a methanol scrubber after being informed by the original scrubber designer that the scrubber would meet the required emission standards. On startup, the system did not meet the design criteria and emissions exceeded the requirements. Harris Group recommended a temporary pre-condenser to get the system on line, then proceeded to design a proper pre-condenser, condensate removal system and a spray system that allowed the mill to meet the emission requirements by the compliance date and avoid significant penalties, including a mill shutdown.

❑ A fire in a recovery boiler cyclone evaporator caused damage to the surrounding structures. Harris Group assessed the structural damage and made recommendations for repairs to allow the unit to return to service.



❑ A heavy washer drum required replacement in an older mill where the building supports for the crane had been weakened by corrosion. Harris Group assessed the building supports and temporary support structures were devised and installed. This allowed the crane to be used for the drum replacement to keep the shutdown time on schedule.

❑ A fire severely damaged a wooden train trestle that also supported the natural gas line to one of our customer's mills. Harris Group responded with a structural review of the line supports to ensure the continued supply of natural gas to the plant.



❑ An effluent clarifier suffered a structural failure in the rake drive support system. Due to corrosion, several parts of the rotating rake assembly became disconnected from the central drum. Harris Group examined the equipment, recommended that certain other corroded members be removed or replaced, that reinforcing plates be placed at areas of reduced cross section, specified the welding required and provided suggestions for sequence and methods of repair.

**If you have an emergency that requires engineering evaluation or assistance, you can count on Harris Group to help you solve the problem.**



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