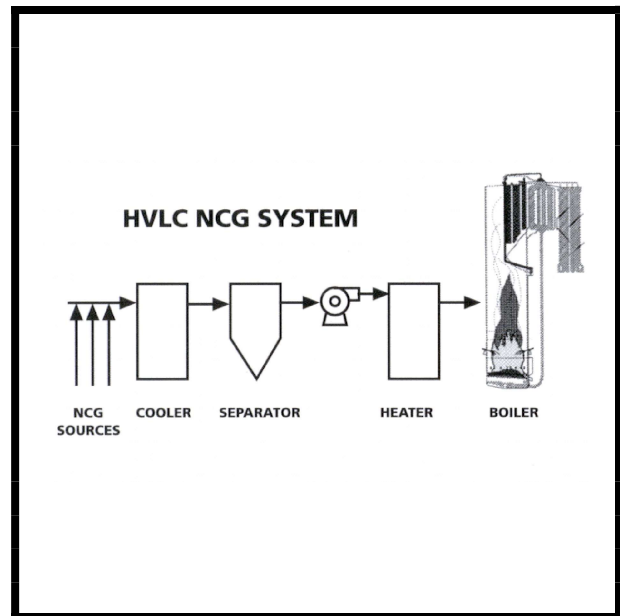
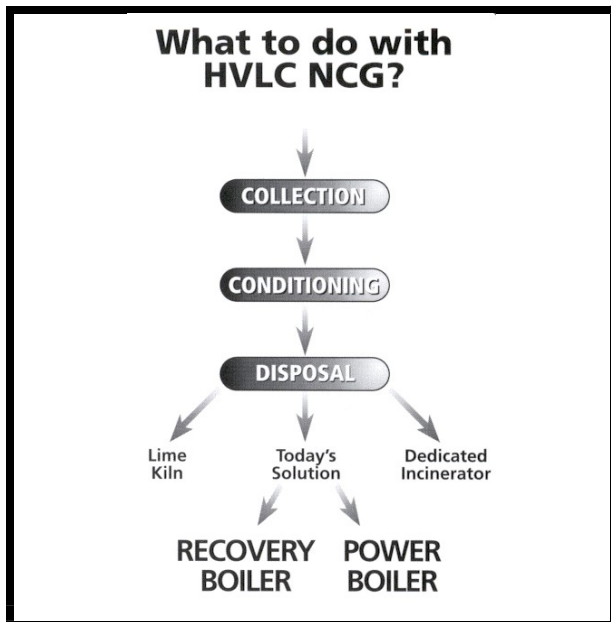


## PROJECT CAPABILITIES

### EVALUATION DISPOSAL OF DNCG AND CNCG IN RECOVERY/POWER BOILERS



Because of Cluster Rule legislation, many kraft mills in North America collect and incinerate dilute non-condensable gas (DNCG).

These dilute non-condensable gases (DNCG) are collected from various sources such as washers, deckers, chip bins, liquor tanks, sewers, and many others. They contain small amounts of TRS and volatile organics, with moist air making up over 95% of the DNCG. As a less expensive alternative to purchasing a dedicated incinerator, this stream can be conveniently combined with balance of combustion air in a power boiler (at the level of overfire air) or recovery boiler (secondary/tertiary air levels). More and more mills are disposing of concentrated NCG (CNCG) in boilers as well.

Mills are faced with making informed decisions where and how to inject the NCG stream safely in an existing boiler and in a manner that will not detrimentally affect normal boiler operation.

#### Scope of Services

- Help select boiler(s) best suited for disposal of DNCG and/or CNCG stream (i.e., specific power or recovery boiler).
- Evaluate impact of NCG injection on boiler efficiency, normal fuel burning capacity, air emissions, corrosion factors, safety, and potential odor problems.
- Determine best location and method of injection of the NCG stream into the furnace in order to assure rapid and complete thermal oxidation.
- Define NCG injection conditions consistent with BLRBAC Recommended Good Practices.
- Define potential secondary (pay-back) benefits of DNCG injection (i.e. combustion air delivery upgrade).
- Develop budgetary estimate or Class 10 cost to design, supply, and install boiler modifications for the injection of the DNCG stream.

**Selected References (see next page)**

**Selected References**  
**Evaluation Disposal of DNCG and CNCG in Recovery/Power Boilers**

Appleton Papers - Roaring Spring, PA  
Bowater, Inc. - Calhoun, TN  
Bowater, Inc. - Catawba, SC  
Canfor PGP&P - Prince George, BC  
Domtar Corporation - Ashdown, AR  
Domtar Corporation - Espanola, ON  
Domtar Corporation - Windsor, QC (2 units)  
Eddy Specialty Papers - Espanola, ON  
Georgia-Pacific Corporation - Camas, WA  
Georgia-Pacific Corporation - Clatskanie, OR  
Georgia-Pacific Corporation - Monticello, MS  
Georgia-Pacific Corporation - Old Town, ME  
International Paper Company - Franklin, VA  
International Paper Company - Pensacola, FL  
International Paper Company - Texarkana, TX (2 units)  
Mead Paper - Escanaba, MI  
Mead Paper - Chillicothe, OH  
MeadWestvaco Corporation - Covington, VA  
MeadWestvaco Corporation - Luke, MD  
MeadWestvaco Corporation - Phenix City, AL  
Roseburg Forest Products - Dillard, OR  
Roseburg Forest Products - Weed, CA  
Simpson Tacoma Kraft - Tacoma, WA  
Smurfit-Stone Container Corporation - Portage du Fort, QC  
West Fraser Mills Ltd. - Hinton, AB  
WestRock - Phenix City, AL  
Westvaco - Evadale, TX  
Weyerhaeuser Company - Campti, LA  
Weyerhaeuser Company - Oglethorpe, GA  
Weyerhaeuser Company - Plymouth, NC  
Willamette Industries - Hawesville, KY