TOTAL UTILIZATION OF MILL WASTE IN DIRECT FIRED KILNS

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Being fairly new to the forest industry, I hear the term 'mill waste' mentioned a great deal and in most cases with reference to sawdust, sander dust, veneer ends and hog fuel (bark). I wondered about this because the term 'waste' means:

"Desolate; stripped; bare; unproductive and wild"

To me the term did not fit the product. It seemed to be more of a 'residue' or 'by-product' because the definition of these two words are 'residue': "What is left behind; that which remains after a part is taken separated or dealt with in some way." 'By-product': "A secondary product, in addition to the principle product or material."

These two terms seem to fit the material in question and give it more meaning. As the material which is left after the log has been processed through the plant, the only time it should be classed as a waste material is when it is disposed in a wasteful manner, such as burning and wasting the heat energy. For example, if a mill has 5 units of residue per hour to dispose of and it was burnt in an open incinerator (Tee Pee Burner), the 'wasted' energy would be approximately 100 million BTU per hour. An 8 hour shift would waste 800 million BTU and with two shifts, you are looking at over 1.5 billion BTU, and "they" say our countries are faced with an energy crisis, yet we waste energy in the range of over 100 billion BTU per hour. Think of the cost if these BTU were from your gas or oil burners.

With the technology changes taking place and modern burners being developed, it now is possible to use your residue or by-product to heat your mill, dry kilns, veneer dryers, lime kilns, log ponds and boilers, etc. One of the modern and sophisticated burners is our Turbulator Residue Burner. We achieve a high degree of efficiency by processing the fuel by pulverizing the by-product and if the moisture content is above 20% (wet base) the fuel is dried with heat from the burner. We then store the fuel. The storage should be sufficient to run the burner for approximately 3 days. The fuel is transfered to the final control bin at the burner. The S.C.R. controller takes over and modulates the firing rate to your desired rating. A burner for one dry kiln would have a chamber approximately 5' in diameter by 8' in length, rated approximately at 20 million BTU/hr. The burners in operation to date are much larger - 9' in diameter by 15' high. This unit modulates from 1/2 unit of fuel to 2 1/2 units or 12 million to 60 million BTU/hr. This burner will handle up to 4 dry kilns and a fuel dryer (direct fired). We had an independent engineering firm do a stack emissions test and their test showed we had 4 grains per 1,000 cu. ft. of air or .004 per cu/ft. We achieve this high efficiency with the turbulence and cyclonic action inside the burner. With the higher costs of gas and oil and in some cases where there is no fuel, the mills can supply their own and even make money.

We are working on some new systems for mills that have a great deal of fuel. This system is a chemical change in which we process the hog fuel and recover such things as methane gas, oils, turpentine and a by-product. You would have a carbon or carbon concentrate to market. With this system you could run your plant on the methane gas - most plants run their fork-lifts on propane which they have to buy. With total utilization, they have their own fuel. There are many profitable ways on the market and new ones being developed, so looking at the term 'mill waste', is it not possible that the term 'waste' is not a practical term any more with the possibility of the mills' utilizing their by-product to combat the energy crisis.

Thank you.