Lopez, Catherine

From: Greg Retzlaff [retzlaff@sterling.net]
Sent: Tuesday, November 27, 2007 9:07 AM
To: Lopez, Catherine
Cc: John_Lague@URSCorp.com; don.b@tfp-hi.com
Subject: RE: Tradewinds - CO vs Fuel Moisture Levels

Hi Cathy

There are two ways for wood to gain moisture 1) by moisture clinging to the wood's surface area, which is greatly affected by climate and rainfall, and 2) by the amount of moisture contained within the wood cells, often referred to by how green or dry the wood is.

Let me explain further. The reason logs don't readily absorb moisture from rain is because the tree consists of a bundle of tubes (tracheids), longitudinal cells which run lengthwise in the tree. These tubes exert strong capillary action on water and are the means by which the tree pumps water to the top of a tall tree. This system continues to operate after the tree has been cut causing water to be pumped out the cut ends. Very little water travels transversely across the fibers. The estimates of water loss are based on actual tests conducted by cutting trees and leaving them in uncovered piles in Hawaii. These logs were tested for moisture content immediately upon cutting and again after air drying.

The tree tops will not be covered during the air drying in the forest or during transportation, nor is it really necessary because a log will not readily absorb much moisture into its cells (example 2 above) from rain. The moisture gain from surface moisture is modest because of the limited amount of surface area and because this moisture readily evaporates. Once converted to hog fuel, the material is more inclined to absorb moisture. The moisture "absorbed" once converted to hog fuel is really mostly surface moisture gain (example 1 above) because the amount of surface of the material once hogged is many times greater than when in log form. The material will be covered once it is converted to hog fuel.

Please let me know if you have any further questions

Greg
503.582.8419

From: Lopez, Catherine [mailto:catherine.lopez@doh.hawaii.gov]
Sent: Monday, November 26, 2007 4:07 PM
To: Greg Retzlaff
Cc: John_Lague@URSCorp.com; don.b@tfp-hi.com
Subject: RE: Tradewinds - CO vs Fuel Moisture Levels

Hi Greg,

Thank you for the information.

The document you sent states Tradewinds intends to air dry the cut trees in the forest for 4 weeks. During these 4 weeks, is the wood covered to minimize exposure to rain? Also, is the wood covered from rain during transport and storage on site? Please discuss the handling of the wood with regard to rain exposure and the potential for increased moisture content from rain.

Please call or email me with any questions.

Thank you,

Cathy
586-4200

From: Greg Retzlaff [mailto:retzlaff@sterling.net]
Sent: Wednesday, November 14, 2007 1:31 PM
To: Lopez, Catherine
Cc: John_Lague@URSCorp.com; don.b@tfp-hi.com
Subject: Tradewinds - CO vs Fuel Moisture Levels

Hi Cathy

You and I met very briefly at the permit public hearing. I am responding to your email sent to John Lague on November 6 regarding our ability to stay within permit limits when combusting fuel with higher levels of moisture. Your email asked the following question:

Our EPA contact person reviewing the permit for Tradewinds has a question regarding the moisture content of the wood being fired in the boiler. Given that excess wood moisture leads to less efficient combustion and a potential increase in CO emissions, what are Tradewinds plans to regulate and monitor the moisture content of the wood? Over what range of wood moisture content is the boiler designed to operate to ensure emissions do not exceed the permit emission limit for CO?

I had to communicate with our boiler manufacturer, Factory Sales and Engineering before I could adequately respond. I have attached a response to this question and to help you respond to EPA's inquiry.

Please don't hesitate to communicate with me if you have any questions.

Regard,
Greg Retzlaff
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