Friday afternoon was devoted to group discussions. The participants were divided into groups of 8 to 10 persons and assigned to a discussion leader. After 30 minutes, each group rotated to another discussion leader. All persons involved found this to be very helpful in problem solving and obtaining information. Some of the questions and replies and general information are presented as follows:

CARTER-SPRAGUE, INC.
Lyle Carter and Mike Sprague
Portland, Oregon

Question: What procedure should be used in setting or adjusting the vent linkage, and how do you know when you are venting too much?

Answer: Since venting requirements differ with species, schedule and type of kiln, there is not one answer as to how far the vents should be open. Generally speaking, "The vents should not be allowed to open further than necessary to maintain W.B. control."

If the kiln does not have modulating vent control, the vents will come wide open and then close in a series of cycles. Each time the vents open, large amounts of cold dilution air are drawn in, which requires the heat systems to come on in order to maintain the D.B. temperature. If at the time the vents go closed, you will probably see a dry bulb override condition.

It is better to have the vents open a smaller amount for longer periods of time. This allows the kiln to maintain better control, which means the lumber being dried sees more uniform conditions and is dried more uniformly. Also, the energy consumed in drying is used more efficiently.

Some "trial and error" may be necessary to find the adjustment that allows the kiln to control down to the desired wet bulb temperature without "dragging" the dry bulb below its set point.

If the kiln has modulated wet bulb control, the instrument will modulate the vents and avoid the cycle control of the non-modulated system. In this case a good way to determine the proper vent opening is to observe the dry bulb temperature when the wet bulb set temperature is lowered. Generally, it is desirable to lower the wet bulb temperature in a reasonable period of time without affecting the dry bulb. If your D.B. temperature drops, the vents are open too far.

If when the W.B. set point is lowered, the dry bulb temperature is allowed to drop, the depression and E.M.C. remain about the same so severity of the drying conditions has not increased.

Since different amounts of venting are required at different points in the schedule and the lower the W.B. temperature, the
more dilution air is required. You may have to observe the kiln at various conditions to determine the proper setting.

BOB STUTZ
Consultant
Los Altos, California

Except for the concentration of oxalic acid to use in removing iron stain, 0.1 molar being about 1.25 oz. per gallon and the loss of effectiveness of copper-8-hydroxy quinoline anti-stain dip in steel equipment; all of the discussion was a rerun of exposure, sour logs and sugar pine brown stain. I trust the paper covers these.

Copper-8-hydroxy quinoline is an effective blue stain suppressing agent at higher use rates than those recommended by the manufacturer. The system is acidic and allows some mold growth. Its worst drawback is its instability in contact with iron of the chain and diptank. The ferric ions that are readily formed in the acid aqueous solution displace the copper ion from the chelate system. The resulting iron-8-hydroxy quinoline is not a fungicide and the green colloidal copper is also inactive. All efforts to reverse the laws of electrochemistry are of no avail—see the Electromotive Series of Metals in any handbook. An iron free diptank and chain through and beyond the tank are a possible solution to this problem.

CARROLL, HATCH & ASSOCIATES INC.
John Vranizan
Portland, Oregon

Question 1: A new dry kiln is equipped with nine 40hp fan motors. The kiln is a double-track unit with 234,000 bf holding capacity. There are three sets of vertical fin pipe, one hangs along each side of the charge and one hangs in the center as a center coil. In eight months the fins have rusted off of the bottom 3-4 feet of each set of coils. What is causing this problem?

Answer 1: In all likelihood the coils are probably not being drained properly. Condensate appears to be collecting in the bottom of the vertical pipe. The condensate is cooler than the steam and makes the fins act as "condensers" instead of radiators. When acting as a condenser, water droplets form on the fins and in the warm atmosphere corrosion (rusting) takes place.

The solution is to make sure that the traps drain the steam coils properly. Either the traps are not working properly or the drain system is not appropriate. Since the equipment is less than one year in service the manufacture of the kiln should be called in to review the situation and take corrective action.

Question 2: On a day-to-day basis how is the "Delta T" in a dry kiln measured?

Answer 2: The "Delta T" must be measured using equipment that is not usually available in regular kiln instrumentation. A kiln control system normally measures dry bulb and wet bulb temperatures. The "Delta T" requires the dry bulb temperatures to
be measured on either side of the load simultaneously. In order to measure these temperatures, it is necessary to install additional temperature sensing devices such as thermocouples. The thermocouples must be read by a control device and if data history is desired, the output must be recorded by a device of some type.

There was a great deal of discussion beyond these two questions but that was generally a rehash of earlier presentations.