From: Don Bryan [mailto:don.b@tfp-hi.com]
Sent: Wednesday, April 18, 2007 5:20 PM
To: Matsumura, April Mido
Subject: tradewinds response

April,

Thank you for forwarding your questions on Tradewinds Air Permit application. Attached is our response together with your original questions. I've also attached some new data we have developed through an independent laboratory comparing VOC from heated eucalyptus compared to Douglas fir. Can you tell us whether a draft permit has been released internally at DOH?

Mahalo,

Don Bryan
President and CEO
Tradewinds Forest Products.

Hi John,

We can start the EPA review period simultaneously w/ the public comment period, and we have done so in the past. However, the drawback is that if there are ANY changes made to the permit in response to the comment period while EPA85
is reviewing the proposed permit, the revised permit must be submitted to EPA, starting a NEW 45-day review period.

EPA 45-Day Review Period

We understand that the EPA review may start over if there are any changes to the permit. However, if it did start over, (1) wouldn't it end at the same time or earlier than if we waited until the end of the 30 day public comment period before starting the EPA review; and (2) if the EPA is nearly complete with its review and we change a number or two in the permit, triggering a new review by the EPA, isn't it unlikely that they would need to use the entire additional 45 days to review this change? Unless there are significant disadvantages that we are not aware of, Tradewinds would prefer that DOH begin the EPA review at the same time the notice of public comment is issued.

I have started reviewing Tradewinds' application more closely and have some general concerns. As stated in Item 5 of our 7/18/06 letter, hazardous air pollutants (HAP) calculations based on EPA AP-42 emission factors were requested unless the NCASI factors provided a more conservative analysis. Although the revised application showed a comparison of EPA and NCASI emission factors, HAP emission totals for the proposed mill were based on NCASI factors which provided a less, rather than more, conservative approach.

NCASI versus AP-42 emission factors for boiler HAPs

We have learned that some of the copies of our updated application that were distributed among the Tradewinds team were missing page 3-14 (Table 3-9), which summarizes the source test data that provided the basis for the AP-42 factors. In case the copy of the application you are reviewing is also missing this page, we are attaching it to this response. This table was an important part of our rationale for using the NCASI boiler HAP emission factors. The key points of this rationale are presented below.

As discussed in Section 3.2.2 of the Tradewinds application, the data compiled by NCASI for the forest products industry are based on source tests that were conducted on units combusting virgin woods only, whereas some of the source data used by EPA in developing the AP-42 factors for wood-fired boilers include tests conducted on mixed fuels, including demolition wastes, treated woods, painted woods and (glued) plywoods. It is only logical that such fuels would contain higher concentrations of chlorine compounds than clean woods, such as will be burned at the O'okala Mill. The source test data conducted by both NCASI and EPA at forest products facilities using clean wood fuels consistently result in numbers that are one to two orders of magnitude smaller than the source tests used to develop the AP-42 factors that did not use virgin wood. Thus the use of AP-42 factors for hydrogen chloride and other HAPs to estimate emissions from the O'okala Mill cogeneration boiler would really be using factors generated from a ***different fuel source category*** than that planned for the O'okala facility, and not just a more conservative ***method for characterizing emissions*** from the same source category.

It is our policy to calculate potential emissions based on maximum capacity, continuous operation, and worst-case scenario. When this is done, the proposed facility is shown to be a major source of HAPs according to EPA AP-42 emission factors (HCl = 11 tons, Total HAPs = 30). See attached file. (Table 3-12 of your application omitted phosphorus.)

Major versus Minor Source of HAPS

Tradewinds understands that, if necessary, federally enforceable permit conditions could be included in the Covered Source Permit to limit annual operations below a level that would trigger the Major HAP Source thresholds or that source testing for selected HAPS could be required to confirm that emissions remain below Major Source levels. However, it is our contention that such limitations are unnecessary in the case of the Tradewinds boiler, since the emission factors that would result in a Major Source designation have been shown to be poorly representative (as discussed above) of the wood fuels that will be burned in the O'okala cogeneration boiler. Based on the Texas and Louisiana permits described below, discussions with regulatory agency staff in Washington and Oregon and information provided by URS air quality consultants specializing in the forest products industry, it is clear that NCASI factors are routinely accepted for speciated HAP emissions estimates from a variety of industry processes throughout the US. Evidence that this is the case for wood-fired boilers is found in the fact that boilers of the size proposed by Tradewinds typically have NOT been determined to be major sources of HAPs

Although I understand that NCASI is an independent, non-profit research institute, its website indicates that it is funded by those in the pulp, paper, and solid wood products industry, with dues ranging from $1500 to > $1.5 million. Although NCASI submitted comments about EPA's overestimation of emission factors, those comments were submitted in 1999, and EPA has since issued AP-42, Section 1.6 in Sep. 2003.

NCASI Comments on AP-42 HAP factors

As described below, NCASI factors are routinely accepted by state agencies and US EPA for quantifying HAP emissions for many source categories pertaining to the forest products industry. Although EPA has issued new HAP factors for AP-42 since the 1999 NCASI comment letter, EPA did NOT modify the previous boiler HCl factor in response to the comments submitted by NCASI. Thus the points raised in 1999 regarding the inappropriateness of AP-42 factors for boilers burning clean woods still exist.

Given the fact that there are no specific emission factors for eucalyptus, that potential emissions are based on worst-case (not average) scenarios, and on the fact that our permitting is subject to EPA review, I would feel more comfortable using EPA emission factors, rather than NCASI, unless, you have some kind of documentation, vendor guarantees, or EPA confirmation on the appropriateness of using the NCASI emission factors. Or, as an alternative, if Tradewinds feels confident that it can comply with the NCASI emission factors, we will impose emission limits and require performance testing to demonstrate compliance. Otherwise, I feel it appropriate to designate the proposed facility as a major source of HAPs.

Documentation of Regulatory Acceptance of NCASI Factors for HAPS

We have done a quick search of other instances in which URS provided recent permitting support for wood-fired boilers in the US to determine what HAP emission factors from NCASI have been accepted by state agencies and US EPA for similar applications. We believe the results of this investigation may raise the DOH's trust or acceptance level for this reliable source of emission factors for wood-fired boilers. We cite the four examples of facilities listed below that have been permitted in recent years (2003 through 2006) using NCASI boiler HAP emission factors for wood firing. All four facilities are PSD and Title V sources, i.e. the permits issued by the state agencies in all cases have been reviewed and approved by US EPA. Additional documentation on these permits can be provided if needed. Also, note that the HCl emission factor used in the emissions calculations for these facilities was the MEDIAN value from Table 20a of NCASI Technical Bulletin 858 (2.38E-04 lb HCl per MMBtu), which is only about one-third the MEAN value from Table 20a that was presented in the Tradewinds application (6.7E-04 HCl per MMBtu). Therefore, the proposed HCl emission calculations for the O'okala boiler already incorporate nearly a factor of three additional conservatism compared with those used in a number of previously approved permits for wood-fired boilers. For this reason, we are confident that actual boiler emissions of this pollutant will be below the values presented in the application. Our review, which was limited to recent projects for which URS has provided consulting support, identified the following four projects:

Texas	International Paper Texarkana Mill (RN100543115)
Louisiana	International Paper Pineville Mill (AI No. 2140)
	International Paper Louisiana Mill (AI No. 1338)
	International Paper Mansfield Mill (AI No. 328)

If needed, we would be pleased to put DOH in touch with the permit engineers for these projects to confirm the acceptance of the NCASI air toxics factors.

We understand your concern regarding the non-availability of emissions data from eucalyptus mill processes, although we have always been of the opinion that volatile organics should be lower for this wood than for the softwoods that are reflected in most of the published emissions data. In order to test this position, Tradewinds contracted with an analytical laboratory to measure the emissions of volatile organics from heated samples of both a softwood species and the eucalyptus species that will be the primary feedstock for the O'okala Mill. The resulting measured organic gases, which are obviously more analogous to the dryer than the cogeneration boiler confirm that organic emissions are much higher for softwoods than for eucalyptus. An attachment presenting the laboratory results is provided as an attachment.

Also, please provide information on how the dryer throughput of 83,000 MSf was determined. Is this a proposed limit or is it the maximum capacity of the dryer, and if so, please show calculations on how this figure was determined.

<u>Explanation of Dryer Throughput</u>

The table on page 4 of 51 (second page in the section) of the second section of Appendix B, in paragraph 3.1, shows a nominal capacity of 13,220 sq feet (3/8" basis) per hour. The first sentence of this paragraph states that these values are based on an 85% Running Ratio and a 97% Fill Ratio.

The answer to your question is that 83,000 Msf is the capacity of the dryer but to properly explain this it is necessary to provide a description of both of these ratios.

Running Ratio

Running Ratio is the ratio of the hours of operation compared to the hours in the period in question. Raute, the dryer manufacturer, recognizes that it is not feasible to operate 100% of the time and indicates that operating 85% of the time is about the best Tradewinds (or anyone else) can expect. This value is determined by accounting for the recommended one day per week shutdown for cleaning and minor maintenance (52 days shutdown per year / 365 days = 14.2% of the year shutdown or 85.8% operating. The manufacturer apparently rounded down to be conservative to arrive at an 85% Running Ratio. However, this ratio is often applied to shorter periods of time, so major maintenance shutdowns are not typically included. Tradewinds anticipates an annual two week shutdown for major dryer maintenance. When this is included, the Running Ratio becomes 50 days per year for weekly cleaning and minor maintenance plus 14 days per year for major maintenance or (50 + 14) / 365 = 17.5% shutdown or 82.5% operation. Rounding down to be conservative provides 82%. Eighty-two per cent x 8760 hours per year = 7,183 or 7,200 hours per year as provided in our application.

Fill Ratio

The Fill Ratio is a measure of how effectively the dryer is being utilized when it is operating. If the strip(s) of wood going through the dryer was continuous without any breaks, then it would have a Fill Ratio of 100%. This of course is not possible because the veneer strip must be cut into appropriate dimensions (such as 54" wide to eventually generate a 48" finished product) and because there are breaks between logs (blocks). The 97% Fill Ratio mentioned in Raute's proposal in Paragraph 3.1 is based on all veneer pieces being a full 54" wide. While this provides a benchmark, it does not reflect how mills are operated, because mills must cut the veneer into various (shorter than 54") lengths to optimize the use of the log (block) and minimize waste and cost. There are three factors that cause the actual Fill Ratio to be much lower than the theoretical (all 54" wide strips) value listed by Raute. These factors are briefly mentioned in Paragraph 3.1, but not fully described. These other factors are listed below:

1. Instead of generating 54" wide strips, 27" wide strips are often utilized to maximize the use of the log. This doubles the amount of space between strips and doubles the amount of lost production. When 27" wide veneer is run, the Fill Ratio will drop by approximately an additional [2%]. To optimize the use of the log, Tradewinds will run produce 27" wide veneer and will experience this additional loss of production.

2. Running random width (many different sizes all smaller then 54") veneer is similar to running 27" wide veneer, except that this includes even smaller strips of veneer generating even greater amount of unproductive space (depending on how many random widths are generated) being left empty on the dryer line and reducing the Fill Ratio by about [3%]. As with the 27" wide veneer, random length veneer strips will be required for Tradewinds to optimize the log use.

3. The dryer conditions are set to avoid over-drying (and spoiling) any of the veneer. Since the wood feedstock has variable characteristics, there are always some sheets that are not fully dried by the time they reach the end of the dryer. These are automatically detected, pulled from the production line and set aside for later re-drying. After a sufficient amount of slightly wet veneer has been

stockpiled, the mill will elect to run these sheets through the dryer a second time. Naturally this replaces the space used by the green veneer and reduces the productivity of the mill's annual production. This process of re-drying the veneer accounts for about [8%] of lost productivity or lost Fill Ratio.

These three reductions in the Fill Ratio that are not accounted for in Raute's nominal capacity of 13,220 sq ft 3/8" equal 13% (2% + 3% + 8%) or 87% of Raute's nominal capacity of 13,220.

So 87% x 13,220 = 11,501 sq ft / hr (3/8") and 11,501 x 7,200 hours discussed above = 82,870,200 sq ft which Tradewinds rounded to 83,000 M sq ft. 83,000 Msf is the capacity of the dryer.

The Fill Ratio concept is very briefly mentioned, but with little explanation, in Footnote 2 on the bottom of Page 3-7.

Also, if there are any vendor guarantees as to ESP collection efficiencies, please provide those as well.

Wet ESP Removal

The guaranteed particulate matter removal efficiency of 80% for the dryer wet ESP is presented on page 1 of the PPC Industries proposal dated September 6, 2006. This guarantee can be found in the last section in Appendix B of our application, and is also mentioned on the last line of page 3-5 of the PPC proposal.

I look forward to discussing these issues with you further after I return to the office on 4/18/07.

Regards,
April

Hazen Research, Inc. Test Results Summary
Eucalyptus THC vs Douglas Fir THC

Summary Prepared by Greg Retzlaff - Tradewinds

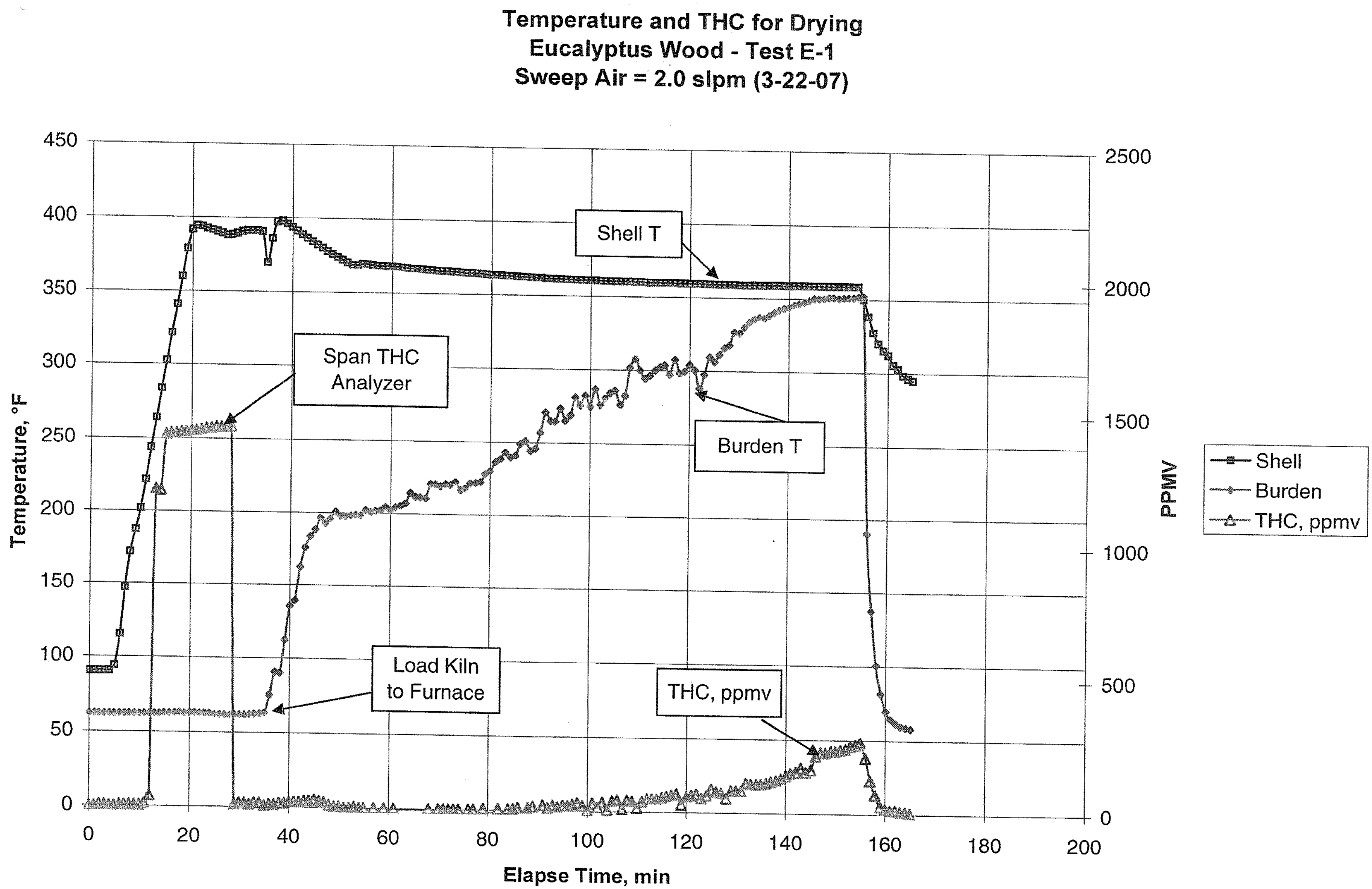
Tests conducted by Hazen Research, Inc.
Harry Mudgett
(303) 279-4501
mudgetth@hazenusa.com

Readings are in ppmv of THC for each time during the test

Sample	Elapsed Time (Minutes) 50	60	70	80	90	100	110	120	130	140	150	Total Eucalyptus	Total Douglas Fir
Eucalyptus E-1	-	-	-	-	10	25	40	50	80	120	250	575	
Eucalyptus E-2	10	-	10	20	10	10	10	20	45	120	130	385	
Douglas Fir DF-1	-	ignore	450	350	300	350	600	700	1,000	1,300	1,350		6,400
Douglas Fir DF-2	250	245	260	650	800	1,150	1,250	1,050	800	650	190		7,295
Total												960	13,695

Eucalyptus THC emissions as a percent of Douglas fir THC emissions: 7.0%

14.3 Times more THC emissions from Douglas fir than eucalyptus


Temperature and THC for Drying
Eucalyptus Wood - Test E-1
Sweep Air = 2.0 slpm (3-22-07)
Temperature, °F
PPMV
Elapse Time, min
Shell T
Span THC
Analyzer
Burden T
Load Kiln
to Furnace
THC, ppmv
Shell
Burden
THC, ppmv
450
400
350
300
250
200
150
100
50
0
2500
2000
1500
1000
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20
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180
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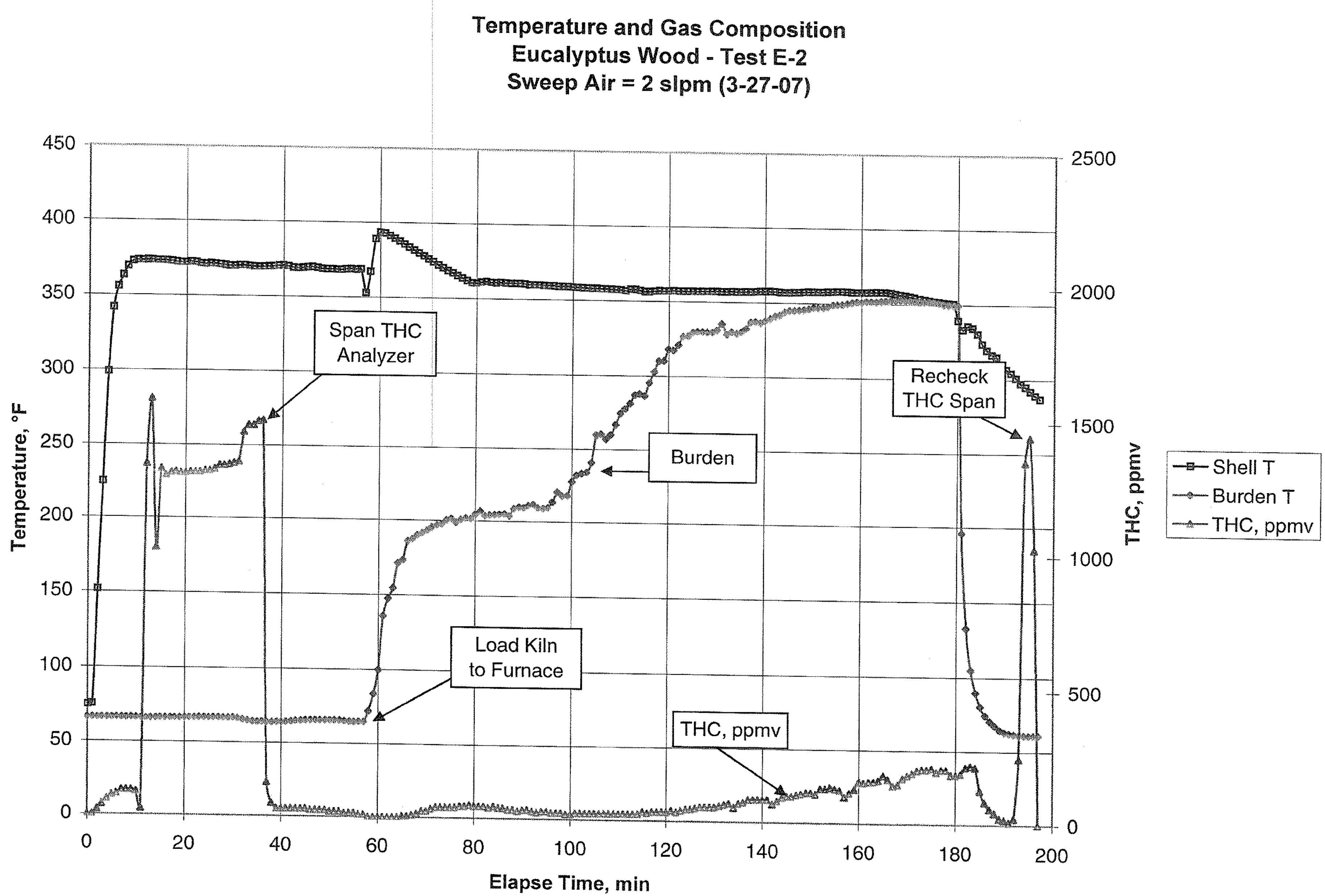
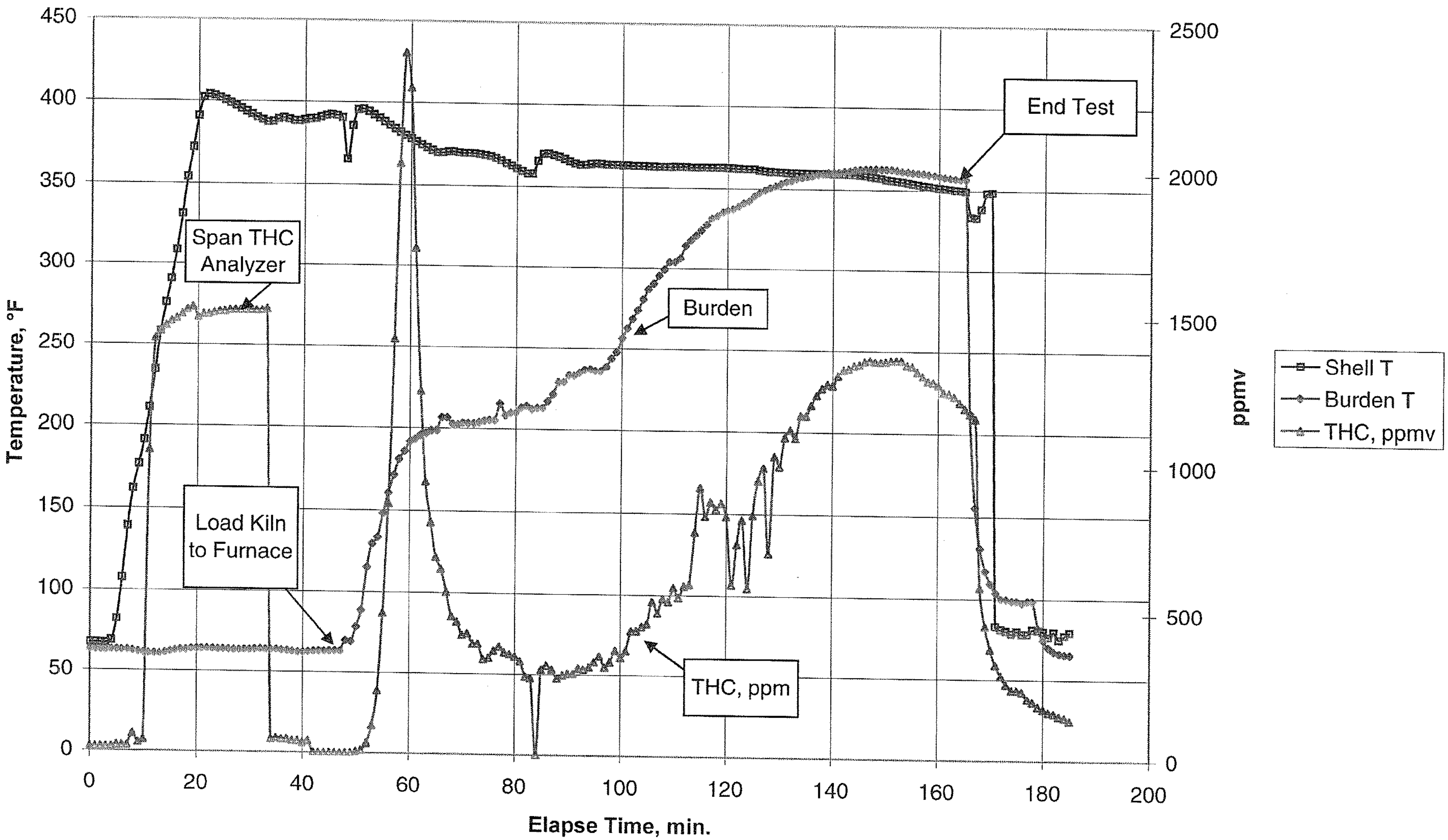
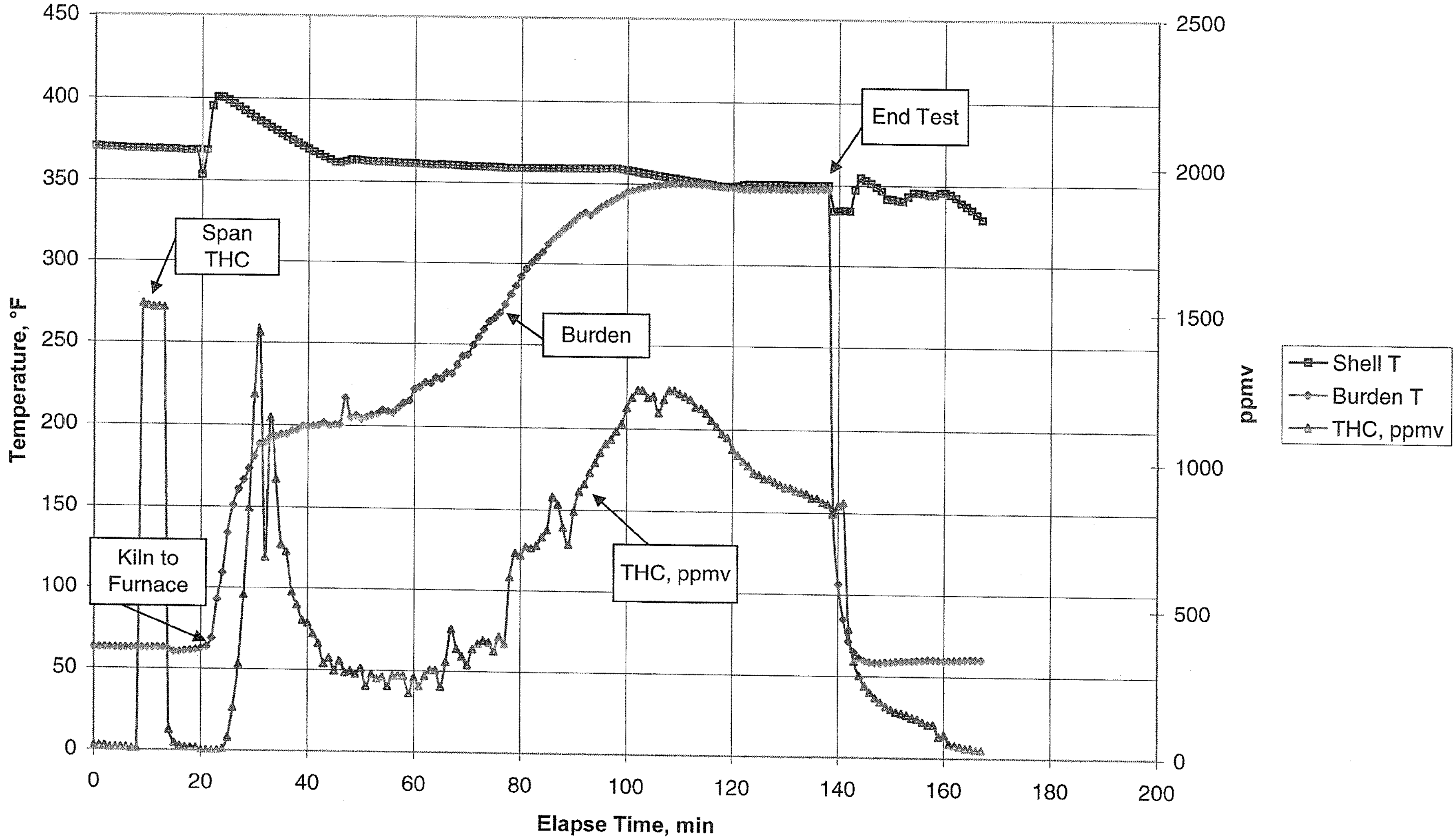


Temperature and Gas Composition
Eucalyptus Wood - Test E-2
Sweep Air = 2 slpm (3-27-07)
Temperature, °F
THC, ppmv
Elapse Time, min
Span THC Analyzer
Load Kiln to Furnace
Burden
THC, ppmv
Recheck THC Span
Shell T
Burden T
THC, ppmv

Temperature and Gas Composition
Douglas Fir - Test DF-1
Sweep Air = 2 slpm (3-26-07)



Temperature and Gas Composition
Douglas Fir - DF-2
Sweep Air = 2 slpm (4-3-07)



Hazen Research, Inc.