

# Agenda for APTI Course No. 427 COMBUSTION EVALUATION

Sponsored by  
Central States Air Resource Agencies Association (CenSARA)  
PO Box 617; 707 N. Robinson Street  
Oklahoma City, OK 73101-0617

Location:  
Nebraska Department of Environmental Quality  
1200 N Street, #424  
Lincoln, NE 68509

May 12-15, 2015

Course Moderator & Speaker  
Taylor Beard, PhD, P.E.

Tuesday, May 12, 2015

<b>Unit</b>	<b>Time</b>	<b>Subject</b>	<b>Manual Pages</b>
	<b>8:00-8:10</b>	<b>Registration and Introductory Comments</b>	
	<b>8:10-9:00</b>	<b>Pre-Test</b>	
<b>1.</b>	<b>9:10-10:00</b>	<b>Introduction to Combustion Source Evaluation</b>	<b>1-1 to 1-13</b>
<b>2.</b>	<b>10:10-11:00</b>	<b>Combustion I: Basic Concepts</b>	<b>4-1 to 4-15</b>
<b>3.</b>	<b>11:10-12:00</b>	<b>Fuels I: General Features</b>	<b>3-1 to 3-19</b>
	<b>12:00-1:00</b>	<b>Lunch</b>	
<b>4.</b>	<b>1:00-1:50</b>	<b>Combustion II: Excess Air</b>	<b>4-15 to 4-24</b>
<b>5.</b>	<b>2:00-2:50</b>	<b>Combustion III: Chemical Energy</b>	<b>4-24 to 4-39</b>
<b>6.</b>	<b>3:00-3:50</b>	<b>Fuels II: Fuel Properties</b>	<b>3-19 to 3-44</b>
<b>7.</b>	<b>4:00-5:00</b>	<b>Combustion Systems I: Conventional Systems</b>	<b>2-1 to 2-29</b>

Homework: Read Chapters 1, 2, 3 & 4; Work Review Exercises Chapters 1, 3 & 4.

Wednesday, May 13, 2015

<b>Unit</b>	<b>Time</b>	<b>Subject</b>	<b>Manual Pages</b>
	<b>8:00-8:50</b>	<b>Discuss Review Exercises</b>	<b>1-14, 3-45 &amp; 4-40</b>
<b>8.</b>	<b>9:00-9:35</b>	<b>Combustion Systems II: Gas Incineration Systems</b>	<b>2-30 to 2-35</b>
<b>9.</b>	<b>9:40-10:10</b>	<b>Combustion Systems III: Boilers &amp; Controls</b>	<b>2-36 to 2-47</b>
<b>10.</b>	<b>10:20-10:45</b>	<b>Combustion Systems IV: Municipal Waste Comb.</b>	
<b>11.</b>	<b>10:55-11:30</b>	<b>Air Pollution Formation I: Acid Gases</b>	<b>5-1 to 5-10</b>
<b>12.</b>	<b>11:30-12:00</b>	<b>Air Pollution Formation II: Particulates and Metals</b>	<b>5-10 to 5-20</b>
	<b>12:00-1:00</b>	<b>Lunch</b>	
<b>13.</b>	<b>1:00-2:00</b>	<b>Air Pollution Formation III: NO<sub>x</sub></b>	<b>5-20 to 5-33</b>
<b>14.</b>	<b>2:10-2:40</b>	<b>Air Pollution Formation IV: Organics</b>	<b>5-33 to 5-41</b>
<b>15.</b>	<b>2:50-3:50</b>	<b>Air Pollution Control I: Particulates</b>	<b>6-1 to 6-18</b>
<b>16.</b>	<b>4:00-5:00</b>	<b>Air Pollution Control II: Acid Gases</b>	<b>6-19 to 6-23</b>

Homework: Read Chapters 5, 6 & 7; Work Review Exercises Chapters 2 & 5.

Thursday, May 14, 2015

<b>Unit</b>	<b>Time</b>	<b>Subject</b>	<b>Manual Pages</b>
	<b>8:00-8:40</b>	<b>Discuss Review Exercises</b>	<b>2-48 &amp; 5-42</b>
<b>17.</b>	<b>8:50-9:40</b>	<b>Air Pollution Control III: Modification for NO<sub>x</sub></b>	<b>6-23 to 6-41</b>
<b>18.</b>	<b>9:50-10:30</b>	<b>Air Pollution Control IV: NO<sub>x</sub> Flue Gas Cleaning</b>	<b>6-41 to 6-49</b>
<b>19.</b>	<b>10:40-11:10</b>	<b>Emissions I: Efficiency Applications</b>	<b>7-1 to 7-11</b>
<b>20.</b>	<b>11:10-12:00</b>	<b>Emissions II: Monitoring Systems</b>	<b>7-11 to 7-16</b>
	<b>11:00-1:00</b>	<b>Lunch</b>	
<b>21.</b>	<b>1:00-1:50</b>	<b>Emissions III: Calculations</b>	<b>7-16 to 7-19</b>
<b>22.</b>	<b>2:00-2:30</b>	<b>Emissions IV: Engines, Turbines</b>	<b>7-19-7-21</b>
<b>23.</b>	<b>2:40-3:40</b>	<b>Emissions V: Gas &amp; Oil Boilers</b>	<b>7-21 to 7-24</b>
<b>24.</b>	<b>3:50-4:30</b>	<b>Emissions VI: Coal &amp; Wood-Fired Boilers</b>	<b>7-24 to 7-28</b>

Homework: Read Chapter 7; Work Review Exercises Chapter 6 & 7.

Friday, May 15, 2015

<b>Unit</b>	<b>Time</b>	<b>Subject</b>	<b>Manual Pages</b>
	<b>8:00-9:00</b>	<b>Discuss Review Exercises</b>	<b>6-50 &amp; 7-29</b>
<b>25.</b>	<b>9:10-10:30</b>	<b>Emissions Workshop</b>	
	<b>10:30-12:00</b>	<b>Post-Test</b>	
	<b>12:00</b>	<b>Course Closing</b>	