Chapter 7 Changes

Location	Text	Change
7.1-1	Figure 7.1-21. Ladder**-slotted** guidepole combination with ladder sleeve	Added '-slotted' to provide clarification
7.1-3	Use of the terminology "routine emissions" **to** refer to standing and working losses applies only for the purposes of this document, and not for any other air quality purposes such as New Source Review (NSR) permitting."**~~?~~**	Added the word 'to' and deleted stray question mark at end of sentence
7.1-14	Tanks are sometimes equipped with a ladder**-slotted** guidepole combination, in which one or both legs of the ladder is a slotted pipe that serves as a guidepole for purposes such as level gauging and sampling. A ladder**-slotted** guidepole combination is shown in Figure 7.1-21 with a ladder sleeve to reduce emissions.	The paragraph initially read "Tanks are sometimes equipped with a ladder/guidepole combination, in which one or both legs of the ladder is a slotted pipe that serves as a guidepole for purposes such as level gauging and sampling. A ladder/guidepole combination is shown in Figure 7.1-21 with a ladder sleeve to reduce emissions." The '/' was removed and '-slotted' was added to provide clarification
7.1-21	D_E should be used in place of D in Equation 1-4 for calculating the standing loss (or in Equation 1-3, if calculating the tank vapor space volume). One-half of the effective height, H_E, should be used as the vapor space outage, H_{VO}, in these equations. This method yields only a very approximate value for emissions from horizontal storage tanks. For underground horizontal tanks, assume that no breathing or standing losses occur (LS = 0) because the insulating nature of the earth limits the diurnal temperature change. No modifications to the working loss equation are necessary for either aboveground or underground horizontal tanks. **However, standing losses from underground gasoline tanks, which can experience relatively fast vapor growth after the ingestion of air and dilution of the headspace, are addressed in Section 5.2 of AP-42.**	Added the following sentence to the paragraph: "However, standing losses from underground gasoline tanks, which can experience relatively fast vapor growth after the ingestion of air and dilution of the headspace, are addressed in Section 5.2 of AP-42."
7.1-24	ASTM D 5191 may be used as an alternative method for determining Reid vapor pressure for petroleum products**, however, it should not be used for crude oils.**	Added the phrase "however, it should not be used for crude oils" to the end of the sentence

7.1-28	For horizontal tanks, use D_E (Equation 1-**1**4) in place of D in Equation 1-37 HLX = maximum liquid height, ft If the maximum liquid height is unknown, for vertical tanks use one foot less than the shell height and for horizontal tanks use (π/4) D where D is the diameter of a vertical cross-section of the ~~**the**~~ horizontal tank	Corrected 'Equation 1-4' to 'Equation 1-14' and removed the duplicative 'the'
7.1-29	Use of gross throughput to approximate the sum of increases in liquid level will significantly overstate emissions if pumping in and pumping out take place at the same time. **However, use of gross throughput is still allowed, since it is clearly a conservative estimate of emissions.**	Added the phrase "However, use of gross throughput is still allowed, since it is clearly a conservative estimate of emissions."
7.1-40	K_S = **standing idle** saturation factor, dimensionless, calculated from Equation 1-21.	Added 'standing idle' to provide clarification
7.1-41	The term with the highest amount of uncertainty is the saturation of the vapor beneath the landed floating roof. The **standing idle saturation** factor, K_S, is estimated with the same method used to calculate the **vented vapor** saturation factor for fixed roof tanks in Equation 1-21. In order to establish limits on the value of KS, the estimated factor is assumed to be less than or equal to the filling saturation factor (S). (For more information see Filling Losses.)	Added 'standing idle saturation' and 'vented vapor' to provide clarification
7.1-45	This equation ~~**should be used to estimate**~~ accounts for both the arrival ~~**losses, then used again to estimate generation losses.. The main concern with this**~~ component and the generated component of the filling loss. This equation is ~~**the estimation of the saturation factor. All other components are**~~ based on the displaced volume times the ideal ~~**gas laws.**~~ vapor density, modified by a saturation factor.	Sentence was changed from 'This equation should be used to estimate arrival losses, then used again to estimate generation losses. The main concern with this equation is the estimation of the saturation factor. All other components are based on the ideal gas laws' to 'This equation accounts for both the arrival component and the generated component of the filling loss. This equation is based on the displaced volume times the ideal vapor density, modified by a saturation factor.'
7.1-45	In that the landed floating roof in an internal or domed external floating roof	Removed the 'or'

	tank ~~or~~ is shielded from wind by the fixed roof, the value of Csf is taken as 1.0.	
7.1-46	For external floating roof tanks with a liquid heel, the amount of vapor lost during filling will be less than the amount for internal or domed external floating roof tanks because of wind effects. The "arrival" component will have been partially flushed out of the tank by the wind, so the preceding equation requires evaluation of the **filling** saturation correction factor for wind, C_{sf}. The basic premise of the correction factor is that the vapors expelled by wind action will not be present in the vapor space when the tank is refilled, so the amount of saturation is lowered.	The word 'filling' was added for clarification
7.1-46	The equation for the **filling** saturation **correction** factor can be simplified based on other equations contained in this section as shown in Equation 3-20 and Equation 3-21.	The words 'filling' and 'correction' were added to provide clarification
7.1-86	Figure 7.1-21. Ladder**-slotted** guidepole combination with ladder sleeve	The '-slotted' was added to provide clarification
7.1-91	~~S_B~~**s**	The 'S_B' was changed to 's' to stay consistent with the chapter
7.1-139	[a] Reference 14. Data for this table are 20-year averages for the years 1991 through 2010, prepared by the National Renewable Energy Laboratory and compiled in the National Solar Radiation Database. Only Class I sites are summarized in this table, but similar meteorological data for several hundred Class II sites may be obtained from this reference. Similar historical averages of meteorological data from nearby National Weather Service sites or site-specific data may also be used. ***NOTE: The current table reflects the hourly average minimum and maximum ambient temperatures while this table in the previous version of Chapter 7 contained the average daily minimum and maximum ambient temperatures.*** T_{AX} = **hourly** average ~~**daily**~~ maximum ambient temperature T_{AN} = **hourly** average ~~**daily**~~ minimum ambient temperature	The following note was added to clarify the data used in the table: "NOTE: The current table reflects the hourly average minimum and maximum ambient temperatures while this table in the previous version of Chapter 7 contained the average daily minimum and maximum ambient temperatures" and the word 'hourly' was added and 'daily' removed from the descriptions of the temperature data to provide correction/clarification

<table>
<tr>
<td>7.1-166</td>
<td>$$K_S = \frac{1}{1 + 0.053\ (\cancel{0.901}\ \mathbf{0.920})\ (2.36)} = \cancel{0.899}\ \mathbf{0.897}$$</td>
<td>Numbers were corrected in the equation and in following steps</td>
</tr>
<tr>
<td>7.1-173</td>
<td>= ~~**610**~~ 572 lb/yr of VOC emitted from tank</td>
<td>Number was corrected</td>
</tr>
<tr>
<td>7.1-199</td>
<td>Calculate total losses for the tank cleaning event. The total loss is the sum of the vapor space purge emissions and the continued ventilation emissions for each day of forced ventilation while volatile material remained in the tank. These emissions are summarized as follows:
<table>
<tr><td></td><td>L_P</td><td>L_{CV}</td></tr>
<tr><td>Day 1</td><td>37</td><td>410</td></tr>
<tr><td>Day 2</td><td>0</td><td>360</td></tr>
<tr><td>Day 3</td><td>49</td><td>190</td></tr>
<tr><td>Total</td><td>~~**67**~~**86**</td><td>960</td></tr>
</table>
</td>
<td>Total was corrected</td>
</tr>
</table>