Future Available Best System of Emission Reduction (BSER) for Tanks

API requested **three years until 95% control is considered BSER for production storage vessels. This phase-in period is needed** to allow time to **design, manufacture, and certify enough controls and critical vapor capture devices,** such as pressure relief valves and thief hatches, to meet the requirements of the rule. Additionally, new designs may be required for controls to meet the NESHAP HH control device requirements in the proposed rule for production facilities,

The primary control option for a production storage vessel is a smokeless combustion chamber. Vapor recovery units (VRUs) require power to run and most oil production facilities do not have an available power supply. Plus, VRUs can be difficult maintain at unmanned facilities. Flares are typically not used because, to be smokeless, they would require air or steam assist. Air and steam are typically not available at production facilities. Therefore, smokeless combustion chambers are the primary method for controlling production storage vessels.

Current Manufacturing Capacity of Combustors

Various manufacturing companies of smokeless combustion chambers were surveyed to identify the maximum number of combustors the companies can currently produce per year. **Based upon the survey, approximately 3680 could be manufactured in a year**[1]**. We did not verify if these combustors would meet the requirements in the proposed regulation or the certification requirements.** More than likely, the design would need to be changed and/or operating/throughput limitations established to meet the proposed regulation and certification requirements. API prefers that the manufactures certify the combustors versus testing and retesting each combustor every five years in the field. API had significant comments on the test procedures (Section 16.12) for testing and certifying controls, which we discussed with the stack testing group.

Furthermore, delays of **several months** are being encountered currently by major operators for thief hatches and pressure relief valves from Enardo (who is the primary producer of this equipment**) for a single pad location**. The proper thief hatch and pressure relief valve on the tanks is essential to capture and route the vapors to the control.

Estimate of Storage Vessels Required for New Wells

The RIA (p. 3-15 on Table 3-2) showed that at a high throughput there would be 304 storage vessels and at a low throughput there would be17,086 storage vessels affected in 2015. The RIA did not explain the origin of estimates. According to the EIA's Annual Energy Outlook for 2011 that EPA referenced in Table 2-13 of RIA, a total of 30,121 successful wells are forecasted for 2015. If you subtract the offshore wells (assuming that storage vessels offshore would not be subject to the rule) and subtract coalbed methane wells (which produce no liquids), potentially **28,341** wells would have storage vessels subject to the rule not including existing tanks that are replaced.

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[1] Companies surveyed included JW Williams Inc., Cameron, Pesco, TCI, John Zink, and Leed.

2015 Forecast of Total Successful Wells Drilled, Lower 48 States (from Table 2-13 of RIA)

Lower 48 U.S. States	Crude Oil	10941
	Conventional Natural Gas	7607
	Tight Sands	2772
	Devonian Shale	7022
	Coalbed Methane	1609
Offshore	Crude Oil	84
	Natural Gas	87
Totals	Crude Oil	11025
	Natural gas	19096

Total Successful Wells 2015 =	30121
- Offshore Wells (assuming not subject) =	29950
- Coalbed Methane (no liquids) =	**28341**

New, commercially successful wells are not expected to qualify for the proposed throughput exemption of 1 bpd of condensate or 20 bpd of crude oil. Further, the vast majority of wells are expected to require controls even with API's requested 12 TPY emission threshold, unless controls are added and made enforceable by NSR permits. For example, it is estimated that approximately 77% of emissions would be controlled in Wyoming if an emission exemption was set in the 10 to 15 TPY range[2]. Unfortunately, storage vessel emission data for other parts of the US are not available in the short timeframes available. **If you assumed that 70% of new wells require controls, then approximately 20,000 combustors would be required each year, which is over 5 times the current manufacturing capacity of combustors.** One cannot assume one control can be used for multi-well pads with multiple tanks because of the potential to exceed the control capacity if all the wells dump liquids to the tank at the same time. Based on experience in Wyoming, many companies use a separate combustor for each tank to avoid exceeding the capacity of the control. **Companies will need time to design equipment, ramp up manufacturing capabilities and hire more staff, manufacture equipment, and then get the equipment certified per EPA requirements. As a result, API believes that a minimum of three years will be required to accomplish this.**

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[2]Wyoming Department of Environmental Quality estimates of controls based on 2006 emissions shown in Graph 6 below. These calculations were based on both new and existing production wells, thus the percentage of emission controlled from just new wells would be significantly higher.

Graph 6 shows the percent reduction based on well emissions grouped on tons VOCs per well. The graph shows approximately 56 percent of the VOC emissions are being controlled at the current BACT level of 20 tpy VOCs.