



Adam Meyer
Key Points – Direct Testimony,
Rebuttal

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Summary of Effort

- Storage vessels, control devices, hydrocarbon loadout
 - Anticipated size of control devices
 - Anticipated facility modifications
 - Cost evaluation
 - Provide recommended applicability

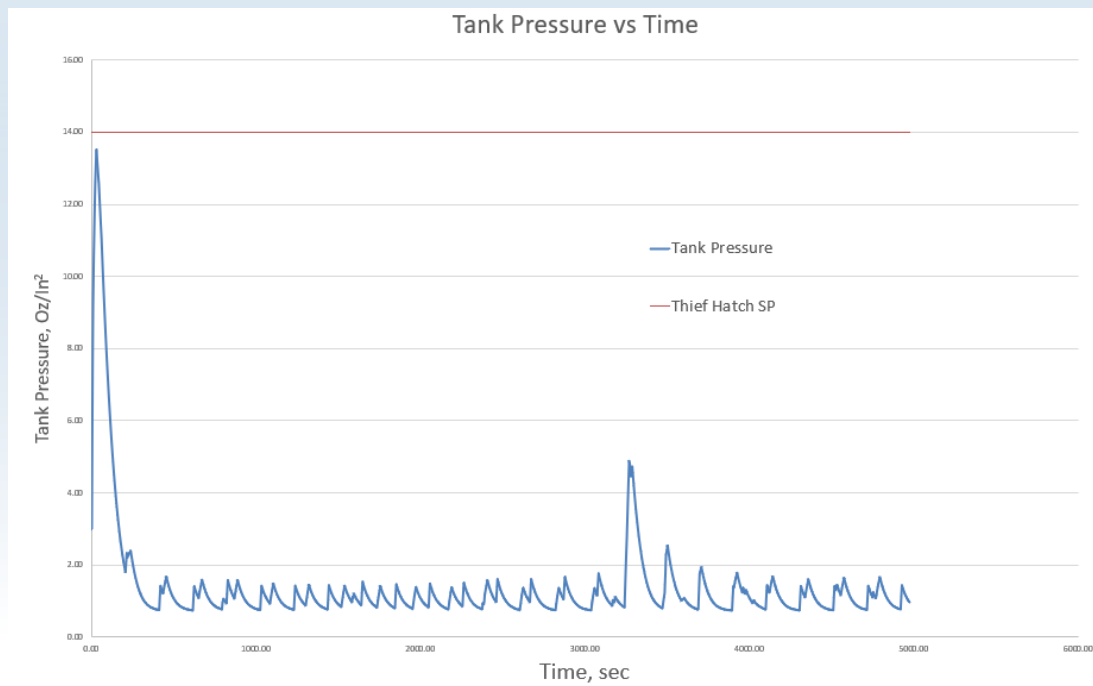
Storage Tank VCS

Valor Memo (Direct), Storage Vessel CVS

- Costs of a storage vessel / tank battery closed vent system may be higher than NMED predicts
- Goal is to prevent tank pressure from reaching “Leak Point” of thief hatches
- Several factors to consider when sizing the CVS:
 - Peak vapor rate (PPIVFR) into /created by tank
 - *Flash, working, thermal/breathing vapors*
 - Available vapor space (“head space”) in the tanks
 - *Single, standalone tank has least amount of head space*
 - Balance of modifying upstream (to reduce PPIFVR) vs adding large control devices (to increase capacity)
 - Using precedent in recent consent decrees, size for all non-precluded tank inputs operating simultaneously. The resulting PPIVFR can create excessive control device capacity, and subsequent turndown issues.

Valor Memo (Direct), Storage Vessel CVS

- The following chart is to illustrate the problem.



Valor Memo (Direct), Storage Vessel CVS

- Costs to consider (in addition to the cost of control device):
 - Concrete pad / foundation
 - Burner management system
 - Dual pilots
 - Piping
 - Knockouts
 - Inlet control valves
 - Solar backup, line power
 - Fuel gas conditioning
 - Rerate or replacement of storage vessel
 - Installation costs (crane time, outage)
- Worst hit by regulations are single, stand alone tank batteries, which need all the upgrades a multiple tank battery needs and therefore are unlikely to afford it.

Valor Memo (Direct), Storage Vessel CVS

- Applicability of 2 tpy storage vessel

Uncontrolled Tank Count	Tanks Less than 2 tpy	Tanks greater than 2 tpy	Capital Investment Per	
			\$104,942 per ERG	\$200,915 per Valor
2057	1019	1038	\$108,929,796	\$208,549,770
19459	9640	9819	\$1,030,464,220	\$1,972,858,519

9819 existing multiple storage vessel or single/standalone vessel tank batteries > 2 tpy, total of **80,718** tpy VOC reduction

- Applicability of 6 tpy storage vessel proposed by Valor

Uncontrolled Tank Count	Tanks greater than 6 tpy	Capital Investment Per	
		\$104,942 per ERG	\$200,915 per Valor
2057	329	\$34,525,918	\$66,101,035
19459	3112	\$326,611,492	\$625,308,721

3112 existing multiple storage vessel tank batteries and single/standalone storage vessel tank batteries > 6 tpy, total of **56,422** tpy VOC reduction

70% to Emission Goal for 1/3 cost

Valor Rebuttal, Tank Battery

Definition- “Tank Battery”

- Added to provide context to its use throughout rules
- Important when discussing truck vapor capture
 - Vapors can and should be allowed to route to tank where liquids are being pulled from **or** tank battery if vapor spaces are adequately communicating.

Valor Rebuttal, Auto Gauging

Add requirement for auto gauging for new storage vessels

- Add level transmitter nozzle during spec/procurement process.
- Should apply for new storage vessels only
- Should **not** apply to new storage vessels being added to existing tank batteries, where existing tanks may not have available nozzles (API12F 1994).
 - May cause confusion whether trucker is required to open hatches to gauge tank or not.
- Although I agree with auto gauging, I think personnel must be allowed to open thief hatches for various maintenance purposes.

