Comprehensive Control Standards

These standards for controlling emissions from new and/or existing wells are in place in various oil & gas producing states.

Segment	Standard	Where in effect
Leaks	Require quarterly, comprehensive LDAR with no step-down.	**California:** California Final Regulation Order, March 25, 2016, 17 C.C.R., Sections 95667(a)(9) and 95668(e)(3). **Colorado:** Colorado Regulation Number 7, 5 C.C.R. 1001-9, Sections XII & XVII. **Ohio:** Ohio General Permit 18.1.C.1.d.2.b.
	Effect on emissions: Additional 20% reduction on top of NSPS for new sources; 80% reduction existing sources *(source: ICF Report)*	
Centrifugal Compressors	No venting from new seals on compressors.	**Canada:** Environment and Climate Change Canada (ECCC) Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector), May 2017. Canada Gazette, Vol. 151, No. 21, Section 11.
	Reduce emissions from wet seal fluid degassing systems on wet seal centrifugal compressors by at least 98% by either utilizing dry-seals or routing wet seal emissions to a closed system or VRU.	**Colorado:** Colorado Regulation Number 7, 5 C.C.R. 1001-9, Section XVII.B.3.b.
	Effect on emissions: 98% reduction on new sources; 98% reduction existing sources *(as required by regulation)*	

Reciprocating Compressors	No venting from new compressors.	**Canada:** Environment and Climate Change Canada (ECCC) Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector), May 2017. Canada Gazette, Vol. 151, No. 21, Section 11.
	Replace rod packing before the compressor has operated for 26,000 hours or prior to 36 months; or collect emissions using rod packing emissions collection system which operates under negative pressure and route emissions to process through a closed system or VRU.	**Colorado:** Colorado Regulation Number 7, 5 C.C.R. 1001-9, Section XVII.B.3.c.
	Effect on emissions: 98% reduction on new sources; 35% reduction existing sources *(source: ICF Report)*	
Dehydrators	Reduce emissions of methane by at least 98% through use of air pollution control equipment	**Colorado:** Colorado Regulation Number 7, 5 C.C.R. 1001-9, Section XVII.D.3. **Wyoming:** Wyoming Nonattainment Area Regulations, Section 6(d)(1)(A) *(applicable to dehydrators located at well sites in the Upper Green River Basin ozone nonattainment area that have VOC emissions of 4 tons per year or more).* *See: https://rules.wyo.gov/Search.aspx?mode=1*
	Effect on emissions: 98% reduction *(as required by regulation)*	
Tanks	Route emissions from all tanks with 10 TPY of CH_4 to vapor recovery unit. Flaring only permitted if no VRU onsite.	**California:** California Final Regulation Order, March 25, 2016, 17 C.C.R., Section 95668(a)(6) *(applicable to separator and tank systems that receive an average of more than 50 barrels of crude oil or condensate a day).*
	Effect on emissions: 97% reduction *(EDF's assumption when emissions sent to control devices.)*	

Pneumatics	Zero bleed for all new continuous bleed controllers. Low-bleed for all existing.	**California:** California Final Regulation Order, March 25, 2016, 17 C.C.R., Section 95668(e)(2). **Colorado:** Colorado Regulation Number 7, 5 C.C.R. 1001-9, Section XVIII.C.2.a.
	Effect on emissions: 76% reduction *(Source: Allen et al 2015)*	
Pumps	Zero bleed for new pumps.	**California:** California Final Regulation Order, March 25, 2016, 17 C.C.R., Section 95668(e)(4).
	98% control, if control available onsite for existing pumps.	**Wyoming:** Wyoming Nonattainment Area Regulation, Section 6(e) *(applies to existing pumps in the UGRB ozone nonattainment area).* *See: https://rules.wyo.gov/Search.aspx?mode=1*
	Effect on emissions: 82% reduction on top of NSPS for new sources; 12% reduction for existing sources *(98% required by regulation; 12% estimates availability of onsite control)*	
Pigging	98% control of pigging emissions.	**See Ohio:** Ohio EPA General Permit 21.1 C.1.b. *(Requires use of add-on control--recovery, flare/combustor or equivalent--as needed to comply with 0.27 ton/month VOC limit.)*
	Effect on emissions: 98% reduction *(as required by regulation)*	
Liquids Unloading	Create differential pressure to minimize the need for venting during unloading activities & operator must remain onsite.	**Colorado:** Colorado Regulation Number 7, 5 C.C.R. 1001-9 Section XVII.H.1.a.
	Effect on emissions: 68% reduction *(Estimated based on EPA Greenhouse Gas Reporting Program data.)*	