

Table 3. LDAR regulations by government.

Source: ITRC Methane Team.

Government Type (Federal, State, Local, International), Agency & Rule	Required Monitoring Method or Technology	Alternative Monitoring Method or Technology Allowance	Pollutant Regulated	Instrument-Based Monitoring Frequency	Leak Standard (ppm = parts per million)	Affected Facilities
U.S. Federal, USEPA, NSPS 0000a	Optical Gas Imaging (OGI), Method 21 (M21)	Yes	Methane + VOCs	Quarterly (compressor stations); semi-annual (well pads)	500 ppm (M21); any detectable emissions (OGI)	New and modified production facilities & gas processing plants ¹
U.S. Federal, USEPA, NSPS 0000	Method 21	Yes (OGI only – Alternative Work Practice)	VOCs	Varies	Varies	Gas processing plants
U.S. Federal, PHMSA, 49 CFR Part 192	Varies	Yes	Methane	Varies based on location (at least every 5 years)	Varies based on location	Natural gas pipeline systems
U.S. Federal, BLM, 43 CFR Parts 3100, 3160, and 3170	OGI, Method 21	Yes	Methane	Quarterly (compressor stations); semi-annual (well pads)	500 ppm (M21); any detectable emissions (OGI)	New and existing production facilities
Canada, Federal, SOR/2018-66	OGI, Method 21	Yes	Methane + VOCs	3 times per year	500 ppm (M21); any detectable emissions (OGI)	New and existing production processing, transmission and storage facilities.
Canada, Provincial, Alberta – Directive 084	OGI, Method 21	Yes	Methane + VOCs	Monthly	500 ppm (M21); any detectable emissions (OGI)	Peace River area only. Existing facilities associated with heavy oil and bitumen operations

¹ NSPS 0000a does not regulate methane from equipment leaks at gas processing plants (VOCs only).

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Canada, Provincial, Alberta- Directive 060 <i>(PROPOSED)</i>	OGI, Method 21, Audio/Visual/Olfactory (AVO) sensory method	Yes	Methane	3 times per year (Sweet gas processing plants and compressor stations; controlled liquid hydrocarbon and produced water tanks); Annually (Sour gas processing plants and compressor stations; all batteries - sweet and sour)	10,000 ppm (M21); any detectable emissions (OGI)	New and existing production, processing, and transmission facilities
State, California Air Resources Board (CARB)	Method 21	No	Methane	Quarterly	1,000 ppm (M21)	New and existing production processing, transmission and storage facilities
State, California Air Resources Board (CARB)	Method 21, OGI, or other CARB-approved method	Yes	Methane	Daily/Continuous	Any detectable emissions	Underground gas storage facilities & wells
State, California Public Utilities Commission (CPUC)	OGI, Method 21, or other methods	Yes	Methane	Every 3 calendar years or alternative frequency that demonstrates comparable or better performance.	Develop leak size action threshold methodology with CPUC & CARB; "Find-and-Fix" until then (any detected leaks)	Gas transmission, distribution, and storage facilities & pipelines
State, California, Division of Oil, Gas, & Geothermal Resources <i>(EMERGENCY REGULATIONS)</i> <i>*Note: moves to CARB provisions once storage monitoring plans finalized</i>	OGI or other effective gas leak detection technology	Yes	Methane	Daily	Not specified	Underground gas storage projects & wells
State, California, Division of Oil, Gas & Geothermal Resources <i>(PROPOSED)</i>	An accepted industry or regulatory standard	See Required Monitoring Method or Technology	Methane	Annual	Not specified	Gas pipelines in sensitive areas
State, Colorado, Air Quality Control Commission – Regulation No. 7	OGI, Method 21	Yes	Methane + VOCs	Monthly, quarterly, and annually	500 ppm, 2,000 ppm (M21); any detectable emissions (OGI)	New and existing production facilities

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State, Colorado Oil & Gas Conservation Commission (COGCC)	AVO, OGI, LASERs, or other detection technology	Yes	Methane + VOCs	Not Specified	Grade 1 Gas Leak	Oil & gas flowlines at/from well production facilities
State, Pennsylvania Dept. of Environmental Protection	OGI, Method 21	Yes	Methane + VOCs	Quarterly for natural gas compression and processing facilities and natural gas well sites (frequency reduced to semi-annually if the percentage of leaking components is less than 2%). Semi-annually for exempted natural gas well sites.	Any release of gaseous hydrocarbons	Any production facility covered by GP-5, GP-5A or PE #38
State, Ohio Environmental Protection Agency	OGI, Method 21	No	Methane + VOCs	Quarterly, then varies	500 ppm, 10,000 ppm (M21); any detectable emissions (OGI)	Any production facility covered by GPs 12.1, 12.2 and 18.1
State, Utah Dept. of Environmental Quality, R307-509	OGI, Method 21	No	VOCs	Semi-Annually; Annually for difficult to monitor components	Any detectable emissions	Well production facilities
State, Utah Dept. of Environmental Quality, General Approval Order Well Site and Tank Battery	OGI, Method 21, Tunable Diode Laser Absorption Spectroscopy (TDLAS) ("laser")	No	VOCs	Quarterly and Annual	500 ppm (M21, TDLAS); any detectable emissions (OGI)	New and existing production facilities
State, Wyoming Dept. of Environmental Quality	OGI, Method 21	Yes	VOCs	Quarterly	Any detectable emissions (OGI); M21 leak threshold not specified (review & approval of threshold request by WY DEQ)	Production facilities in existence prior to January 1, 2014 in ozone non-attainment area
Local, California, Various Air Districts	Method 21	No	VOCs	Varies	Varies	Oil & gas facilities

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Local, City of Thornton, CO	OGI	No	Not specified	Monthly, then quarterly after one year	All detectable emissions	New and existing production facilities