

Public Citizen Texas		Oil and Gas Regulation/ Best Practices									
		TEXAS	OKLAHOMA	COLORADO	WYOMING	NORTH DAKOTA	OHIO	WEST VIRGINIA	PENNSYLVANIA	NEW MEXICO	
Structure	Oil and Gas Regulatory Agency	Railroad Commission of Texas	Oklahoma Corporation Commission [1]	Colorado Department of Natural Resources: Oil and Gas Conservation Commission [2]	Wyoming Oil and Gas Conservation Commission [3]	North Dakota Industrial Commission [4]	Ohio Department of Natural Resources	West Virginia Department of Environmental Protection	Pennsylvania Department of Environmental Protection	Energy, Minerals & Natural Resources Department	
	Composition of Leadership	3 full-time elected commissioners: No bars to election based on conflicts of interest [5]	3 full-time elected commissioners: must have no direct or indirect interest in any entity regulated by agency. Strict campaign limits, and corporate contributions prohibited; in addition, contributions to Commission candidates limited to 120 days before primary and 120 days after general elections. [6]	7 appointed part-time commissioners and 2 ex officio voting members, the Executive Directors of the Department of Natural Resources and the Department of Public Health and the Environment. Specific requirements relating to education, experience, and location in state ensure diversity and balance among appointed commissioners. [7]	5 part-time commissioners: Governor, State Geologist, Director of Ofc of State Lands & Investments, and two appointed public members qualified to serve the oil and gas industry [8]	3 part-time commissioners: Governor, Attorney General, and Ag Commissioner [9]	Director is appointed by governor, cabinet-level executive position; no specific qualifications. The director designates the chief of the Oil & Gas Resources Division. The chief shall not hold any other public office, nor be engaged in any occupation or business that might interfere with or be inconsistent with the duties as chief. [10]	Governor appoints Secretary/Director [11]	Secretary appointed by Governor [12]	Governor appoints Cabinet Secretary [13]	
	Jurisdiction/Functions of Agency	Primary jurisdiction over oil and gas industry, intrastate pipelines, gas services, including natural gas utilities and LP-gas industry, and surface mining operations. No jurisdiction over railroads.	Regulates oil and gas activity, public utilities, and transportation, <i>including railroads.</i>	The DNR oversees forestry, mining, oil & gas, parks & wildlife, state lands, water conservation, and water resources	Oil and gas activity [14]	Commission regulates certain utilities, industries, enterprises and business projects established by state law	Regulates all natural resources, including forestry, surface mining, oil and gas activity, parks and recreation, wildlife, soil and water conservation, energy, hunting/fishing, et al [15]	Air quality, mining, oil and gas activity, water use and quality, wasterm dam safety, forestry	Primary responsibility for protection of natural resources and environmental health and safety	Department has jurisdiction over energy conservation and management, state forestry, mining and minerals, oil conservation, and state parks.	
	Mission Statement	To serve Texas by our stewardship of natural resources and the environment, our concern for personal and community safety, and our support of enhanced development and economic vitality for the benefit of Texans.	In the interests of the public, the Commission will oversee the conservation of natural resources to avoid waste, abate pollution of the environment, and balance the rights and needs of the people with those of the regulated entities which provide essential and desirable services for the benefit of Oklahoma and its citizens.	To foster the responsible development of Colorado's oil and gas natural resources, which will result in the efficient exploration and production of oil and gas resources in a manner consistent with the protection of public health, safety and welfare; the prevention of waste; the protection of mineral owners' correlative rights; and the prevention and mitigation of adverse environmental impacts. We are as committed to protecting public health and the environment as we are to fostering the responsible development of Colorado's oil and gas resources.		To encourage and promote the development, production, and utilization of oil and gas in the state in such a manner as will prevent waste, maximize economic recovery, and fully protect the correlative rights of all owners to the end that the landowners, the royalty owners, the producers, and the general public realize the greatest possible good from these vital natural resources.	To ensure a balance between wise use and protection of our natural resources for the benefit of all.	To support a healthy environment. Legislative finding: Those functions of government which regulate the environment should be consolidated...to carry out the environmental functions of government in the most efficient and cost effective manner, to protect human health and safety and, to the greatest degree practicable, to prevent injury to plant, animal and aquatic life, improve and maintain the quality of life of our citizens, and promote economic development consistent with environmental goals and standards. [16]	To protect Pennsylvania's air, land and water from pollution and to provide for the health and safety of its citizens through a cleaner environment. DEP's Office of Oil and Gas Management is responsible for the statewide oil and gas conservation and environmental programs to facilitate the safe exploration, development, recovery of Pennsylvania's oil and gas reservoirs in a manner that will protect the commonwealth's natural resources and the environment.		
Enforcement	Policy			Enforcement program is designed to deter violations and encourage compliance. 1. Notices of Alleged Violation [NOAVs] issued when Director has probable cause to believe violation has occurred. Less serious violations, i.e., violations that do not pose significant actual or threatened injury to public health or the environment, do not cause waste, do not damage correlative rights, and are not part of a pattern, may be handled with warning letter or corrective action required inspection report. 2. Most operators have opportunity to engage in settlement negotiations, resulting in consent orders. 3. If no settlement, matter proceeds to an Order Finding Violation [OFV] hearing, which is a full evidentiary hearing before the Commission. **Violations that demonstrate an operator's gross negligence or knowing and willful misconduct, or pattern of violations must go directly to OFV hearing.			The Division works to protect Ohio's oil and gas resources, the environment and the interests of citizens living near oil and gas wells. Inspectors investigate citizens' complaints, enforce and oversee well construction and waste disposal activities, and the plugging of wells and site restoration. When a well owner fails to meet requirements established by law, the Division of Oil and Gas Resources Management has a variety of enforcement options to gain compliance. The Division generally maintains a standard operating procedure of escalating enforcement measures from informal to formal, depending upon the nature of the violation. When informal measures are unsuccessful or a violation endangers public health and safety or the owner demonstrates flagrant disregard for the law, more formal enforcement measures are used. The Division chief has the authority to issue orders or file civil or criminal enforcement actions, if necessary, to correct a violation.	Upon discovery of violation, the inspector shall write the violation with compliance requirement and provide a maximum of 7-day period to abate the violation. If the violation is an imminent danger, the inspector shall issue an imminent danger violation requiring the operator to cease operations. After the 7-day period, if the violation has not been abated, the inspector shall issue a failure to abate notice requiring the operator to cease further operations. Upon the issuance of a failure to abate, the inspector shall notify the Office's permitting section to block the issuance of permits. [17]	The primary objective of the enforcement program is to attain and maintain a high degree of compliance with the laws governing oil and gas development. Basic Principles of Enforcement - An appropriate enforcement action should be taken for each identified violation. The minimum action for any violation is a written notification in the form of a NOV or a copy of an inspection report that notifies the operator or other responsible person (operator) of the violation. If the violation is corrected before the end of an inspection, an NOV may not be necessary if the violation is noted on the inspection report. In order to attain and maintain compliance, follow-up action should be based on progressive enforcement in accordance with enforcement priorities of the program, as appropriate under the circumstances. Civil penalties may be assessed in various circumstances. These include a threat to public health, safety or the environment; repeat violations; failure to apply for and obtain permits or registrations; and failure to submit reports. The factors used to determine the amount of the penalty include deterrence, damage to public health, safety or the environment; willfulness; operational cost savings; and costs incurred by the Department during an investigation.	Upon discovery of violation, an immediate enforcement may be taken (spill, pipeline rupture or blowout). Otherwise, a directive is first issued by the division to violators. If no response is received, or if a response is received which is inadequate, a Notice of Violation ("NOV") should immediately be issued and further enforcement action considered. If the response is adequate, a corrective action plan may be agreed upon. If no response is received to the NOV or if an inadequate response is received, the District or Bureau may make additional follow-up efforts to obtain voluntary compliance. An order may be issued shutting-in production of a particular well, unit or project, temporarily canceling oil and gas transport authority, ordering temporary abandonment, ordering permanent abandonment or suspending action on pending applications. If above measures failed, a decision on further enforcement action will be made. [18]	
	Inspections	*Alaska has the lowest ratio with about 370 wells per inspector. No inspection schedule for non-commercial disposal or injection wells	158 inspectors 134,484 inspections conducted in FY2015 Inspector-to-well ratio: 2,340+ active wells per inspector	The Field Operations Department has 50 field inspectors. The department is responsible for pollution prevention, insuring proper plugging of wells, witnessing mechanical integrity tests, running initial production tests on newly drilled wells, conducting UIC inspections and ensuring that good housekeeping practices are followed. The department is also responsible for identifying and prioritizing wells that need to be plugged using state funds. [19]	The Field Inspection Unit inspects oil and gas wells and related facilities. The Unit has 28 full-time employees Inspector-to-well ratio: 2,000 Wells with reported problems are prioritized for re-inspection, which may result in multiple inspections of the same well in a short period of time [20]	Inspector-to-well ratio: more than 2,900 active wells per inspector.	18 inspectors Inspector-to-well ratio: 500	ODNR has over 50 field inspectors, including four inspectors dedicated to inspecting Class II injection wells. Injection wells are inspected by the Division once every 12 weeks, at a minimum , but are often inspected more frequently. In addition to the quarterly inspections, the Division witnesses 100% of critical phases of the injection well construction and operation. This includes surface casing cementing, tubing and packer placement, and mechanical integrity testing.	21 inspectors DEP's Office of Oil and Gas Management had 100 inspectors in 2014; 26,940 inspections were conducted. [21]	47,399 inspections conducted in FY2015	
	Complainant Involvement	No role for landowners/complainants [22]		Complainants can track their complaints online, and can object to decisions of no violations and terms of proposed settlements. [23]				Complainants have a role in certain investigation and enforcement matters.			

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	Complaint Statistics available online		Total number of oil and gas complaints received and resolved; no details provided [24]	Searchable databases for well information, case processing, etc., but not very user friendly	Detailed reports, updated monthly, of complaints posted online; type of complaint, operator, location, days between receipt and contact, days to resolution [25]		Daily activity reports (permit, producing well completion), annual production report	Public database of effective corrections made for violations [26]	Public website allows for broad or narrow searches; can search by operator, county, inspector, and/or timeframe. [27]	Public database for inspections, violations, enforcement history, etc., searchable by operator or region. Compliance reports also available.	Detailed information about each well's depth, last inspection date, pit use status, financial assurance, compliance, complaints, incidents and spills, production/injection volume, points of disposition etc. Update nightly [28]
	Penalties		Administrative penalty: i. up to \$10,000 per day for violations not related to pipeline safety ii. up to \$200,000/day for violations related to pipeline safety Criminal Penalty: i. Imprisonment of not less than two years or more than five years or a fine of not more than \$10,000 or both for false applications, reports, and documents and tampering with gauges (V.T.C.A., Natural Resources Code § 91.143) ii. Class A misdemeanor for a violation of disposal pit rule 91.452 (prohibited use of a saltwater disposal pit for storage or evaporation of oil field brines) and rule 91.457 (removal of unauthorized pit) iii. not more than \$10,000 per violation per day in violation of Natural Resources Code § 91.101 (Rules and Orders made to prevent pollution) [29]	Flat rate penalties ranging between \$1,000 and \$5,000 Criminal penalty: up to \$5,000 and/or imprisonment for a term not exceeding 30 days [30]	Civil penalty up to maximum of \$15,000 per violation per day based on degree of threatened or actual impact to public health, safety, welfare, the environment, or wildlife. [31]	1. a fine up to \$5,000 per violation per day 2. civil penalty up to \$10,000 per violation per day 3. criminal penalty subject to a fine of not more than \$5,000.00 and/or imprisonment up to 6 months [32]	1. Civil penalty up to \$12,500 per day for each offense unless the penalty for the violation is otherwise specifically provided for and made exclusive 2. Class C felony if willfully violate rules pertaining to the prevention or control of pollution or waste [33]	1. violation of drilling permit: civil penalty up to \$10,000 per day 2. violation of underground injection permit: civil penalty from \$2,500 to \$20,000 per day 3. wastewater discharge violations: civil penalty from \$2,500 to \$10,000 per day [34]	Penalties up to \$2,500 per day per violation Horizontal wells: Civil penalties up to \$5,000 per day per violation Civil penalties up to \$100,000 for violations of disposal rules resulting in significant adverse environmental impact on surface or groundwater Criminal fines up to \$5,000 and/or imprisonment up to 12 months [35]	Conventional wells: civil penalty up to \$25,000 plus \$1,000 for each day during which the violation continues Unconventional wells: \$75,000 plus \$5,000 for each day the violation continues. [36]	1. Civil Penalty: up to \$1,000 per day per violation 2. Criminal Penalty: not exceeding \$5,000 per day per violation and/or imprisonment not exceeding 3 years [37]
	Hearings		Railroad Commission	OCC Office of Administrative Proceedings [separate division within agency]	COGCC , Hearings Unit [38]	Wyoming Oil and Gas Conservation Commission [39]	Oil and Gas Division [40]	ODNR Division of Oil and Gas Resources	Oil and Gas Conservation Commission [41]	Pennsylvania Environmental Hearing Board [42]	Oil Conservation Division [43]
	Presiding Officer(s)		In-house hearing examiners, legal and technical Hearings may be conducted by commissioners, directors, or employees designated as examiners [44]	Division ALJs [45]	In-house hearing officers [46]	In-house examiners appointed by the Commission or the full Commission [47]	Assistant AG along with OGD's technical staff [48]	Chief of the Division "Any person adversely affected by an order by the chief of the division of oil and gas resources management may appeal to the oil and gas commission for an order vacating or modifying the order. (R.C. § 1509.36) 1.5 Appointed Commissioners (appointed by Governor) 2.No more than 3 members may belong to the same political party. 3.One member shall be classed as a representative of the public. 4.One member shall be classed as a representative of independent petroleum operators. 5.One member shall be classed as a representative of major petroleum companies. 6.One member shall be learned and experienced in geology."	Five Commissioners, including the DEP director and the chief of the office of oil and gas. The remaining three commissioners are appointed by the governor, one of whom must be an independent producer and at least one must be a public member not engaged in an activity under the jurisdiction of the public service commission or the federal energy regulatory commission . The third appointee shall possess a degree from an accredited college or university in petroleum engineering or geology and must be a registered professional engineer with particular knowledge and experience in the oil and gas industry and shall serve as commissioner and as chair of the commission. [49]	Five appointed judges Qualifications: career prior to tenure: 1. partner in a private law firm; 2. Assistant Counsel in DEP; 3. Deputy Chief Counsel in DEP; 4. partner in a private law firm; 5. presented case before DEP, worked inside DEP) [50]	Division Examiner conducts hearing and makes report and recommendations; Director issues decision, which may be appealed <i>de novo</i> to Commission. [51]
	Public Access to Information		Despite funding to improve technology, there is still very limited information available on the Commission's website	Searchable databases for well information, case processing, etc., but not very user friendly	Easily searchable databases and wealth of information available online: inspection/incident inquiries; facility inquiries; spill data, updated monthly; spill analysis by year; water-well data, updated monthly; field inspection reports; quarterly and annual enforcement reports		Daily activity reports (permit, producing well completion), annual production report	Public database of what effective corrections made for violations	Information regarding complaints, investigations, and other enforcement matters readily accessible on website	The public can search for individual permits (authorizations), operators (clients), wells (facilities), inspections, and by Program (OG), oil and gas production information, permits issued, drilling commence date (SPUD date), county data, operator specific data, as well as inspections, violations and enforcement actions." [52]	Detailed information about each well's depth, last inspection date, pit use status, financial assurance, compliance, complaints, incidents and spills, production/injection volume, points of disposition etc. Update nightly
	Permitting	Drilling Fees	\$200-300 based on depth [53]	\$175 [54]	\$0 [55]	\$50 [56]	100 the permit expires one year after issuance [57]	• Non-Urban Drilling Permit \$500.00 • Urban Drilling Permit \$500-1,000 depending on population [58]	Conventional well: \$400 Horizontal well: \$10,000 [59]	Conventional wells: \$250-\$1,950+ (Based on well bore length) Unconventional wells: \$4,200-\$5,000 [60]	<i>Search did not locate statute, regulation, or policy addressing this issue</i>
		Disposal Well Fees	\$100 per well [61]	\$1,000 for commercial disposal well application \$100 for non-commercial injection or disposal well application [62]	\$0 [63]	\$75 annual fee for all new and old disposal wells [64]	100 the permit expires one year after issuance [65]	Brine Disposal Permit \$1,000 [66]	UIC permit fee: \$550 (includes fee for groundwater protection plan) [67]	The same as production wells, above [68]	
		Requirements			In addition to a drilling permit [review of subsurface issues], operators must also obtain a location assessment permit, which requires consideration of planned location, planned disturbance sizes, planned and existing equipment and facilities, land use, soil and vegetation, surface and groundwater, environmental conditions, wildlife habitat, cultural concerns, public safety aspects, and the operator's best management practices for construction and operation. [69]						

Oil and Gas Regulation/ Best Practices

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Financial Assurance	Bond per well	\$2/ft of actual well depth, despite Commission figures indicating the average well plugging cost in FY 2015 ranged from \$5 to \$17 per foot. [70]	Based on plugging cost but not to exceed \$25,000 The average cost of plugging a well over the last five fiscal years was \$17,566, during the first six months of FY 2016 the average cost to plug a well was \$2,940 Operators must submit an Affidavit of Well Plugging Costs to OCC. The minimum acceptable amount for OCC is \$2/ft on the total depth of well. [71]	Plugging bond: \$10,000 for wells less than 3,000 feet in depth, \$20,000 for wells equal to or greater than 3,000 feet in depth Surface bond for wells and associated facilities for which the surface owner neither owns the minerals nor has a surface use agreement with the operator: -provides monetary award to surface owner for unreasonable crop loss or damage that cannot be remediated, and -requires \$2,000-\$5,000 individual well bond, or a \$25,000 state-wide blanket bond. Agency has power to award \$\$ above bond amount. Additional bonds required for seismic operations, waste management facilities, inactive wells, UIC wells, etc. All operators are required to maintain general liability insurance of \$1,000,000 per occurrence to cover property damage and bodily injury to third parties. [72]	\$10 per foot, adjusted every three years based on the Wyoming consumer price index or actual plugging costs [73]	\$50,000 (Wells drilled to a total depth of less than two thousand feet may be bonded in a lesser amount if approved by the director) [74]	\$15,000 [75]	\$5,000/conventional well \$50,000/horizontal well [76]	\$2,500 plus surcharges added to drilling permits to help fund abandoned well plugging program [77]	\$5000 plus \$1 per foot in some counties or \$10,000 plus \$1 per foot in others	
	Blanket bond	\$25,000 to \$250,000, based on the number of wells secured a. 0 to 10 wells, \$25,000 b. 11 to 99 wells, \$50,000 c. 100 wells or more, \$250,000 [78]	i.\$25,000 to \$100,000.00 ii.or prove operator's total net worth not less than \$50,000 located in the state [79]	Plugging bond: \$60,000 for less than 100 wells; \$100,000 for more than 100 wells [80]	\$100,000 [81]	\$100,000 [82]		\$50,000/conventional wells \$250,000/horizontal wells [83]	\$25,000 [84]	\$50,000	
Flaring/ Air Quality	Regulatory Agency	Railroad Commission	Oklahoma Corporation Commission	Colorado Department of Public Health and Environment and Colorado Oil and Gas Conservation Commission	Wyoming Oil and Gas Conservation Commission [85]	North Dakota Department of Health & Industrial Commission [86]	ODNR Division of Oil and Gas Resource	Department of Environmental Protection, Division of Air Quality	Department of Environmental Protection, Bureau of Air Quality [87]	Energy, Minerals and Natural Resources Department, Oil Conservation Division	
	Flaring Rules	*In Alaska, gas is prohibited from being released, burned or escaped into air except for safety or testing operation. Flaring or venting time not to exceed one hour.	1.Operators can flare up to 10 days after a well's completion. 2.Commission staff issue flare permits for 45 days at a time, for a maximum limit of 180 days Operators not required to submit gas capture plans prior to getting drilling permit. Despite prohibition against waste, there is inadequate incentive to capture more natural gas. [88]	Operators can flare up to 50 mcf per day without permit [89]	First state to adopt statewide rules to control venting and leaks from natural gas operations. Operators must capture 95% of gas. The unnecessary or excessive venting or flaring...is prohibited. Rule 912.a Prior written approval required for flaring other than during upset condition, well maintenance, well stimulation flowback, purging operations, or a productivity test. Rule 912.b. [90]	Up to sixty (60) mcf of gas per day authorized to be vented or flared [91]	Operators can flare gas for one year from the date of first production from the well free of taxes, royalties, and penalties, and extensions can be granted for economic infeasibility. [92]	In urbanized areas where flaring is expected, the permittee must notify the local emergency response officials that such may occur. 1. Owner must use every reasonable precaution to prevent waste. 2. Gas may not be vented to atmosphere, must be flared if there is no economic market. [93]	"Temporary" flaring allowed for 30-days per year [94]	[95]	Operators may flare or vent casinghead gas produced from a well up to 60 days following completion; possible to apply for exemptions. [96]
Water Use	Regulatory agency	Texas Commission on Environmental Quality (RRC has no authority to regulate withdrawal or use of water)	Oklahoma Water Resource Board [97]	The Division of Water Resources	State Engineer's Office	State Water Commission [98]	ODNR Division of Soil and Water Resources	West Virginia DEP Division of Water and Waste Management	Pennsylvania DEP; Delaware River Basin Commission(DRBC); Susquehanna River Basin Commission (SRBC) [99]	State Office of Engineering [100]	
	Permit Requirements	Permit required for surface water use only; groundwater belongs to surface owner. [101]	A 90-day provisional temporary permit required [102]	No prior permit required, but must use water permitted for industrial use	1. a permit is required for both groundwater and surface water 2.Groundwater applications (for projects over 25 gallons per minute) within a groundwater control area, must be approved by the control area's advisory board. In these control areas, an application also must be posted in a local newspaper.	Permit required; each permitted water user is allocated a specific volume of permitted water use on annual basis and must report actual usage to the state. [103]	1.Water withdrawal registration required if facility has the capacity to withdraw 100,000 gallons per day; 2. Permit required if facility uses more than 2 million gallons of water per day. [104]	Water use greater than 300,000 gallons to hydrofrac a well must be reported. Horizontal well permit applications must include a water management plan if more than 210,000 gallons of water/30-day period will be used in conjunction with drilling, fracturing, or stimulating a well; Department determines suitability for permit based on types of water sources and disposal methods proposed. [105]	Prior approval required of groundwater or surface water withdrawals exceeding 100,000 gpd. [106]	Operators must obtain a permit from SOE. Once the permit is issued, operators need to prove the intended beneficial use of the water. The state engineer then issues a license to appropriate water to the extent and under the conditions of the actual application. [107]	
	Reporting/Monitoring	Operators required to report volume of water used in drilling/completion		Operators must report volume of water or fracking fluid used [108]	The permittee is required to submit a notice of commencement and a notice of completion with the State Engineer's office.	1.on-site remote telemetry to collect real-time data of water usage 2.Civil penalty up to \$25,000 per day and criminal penalty [109]				Water masters in the Water Resources Allocation Program inventory water resources and monitor water use. [110]	
	Legal recourse if oil & gas activities result in diminished or disrupted water quantity to water rights owner	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Water Quality	Baseline water testing required	No	Yes, for injection wells [water wells]	Yes [water wells]	Yes [water wells and springs]	Yes	Yes	Yes [water wells and springs]	No, but encouraged because may provide defense against presumption of liability.	No	
	Presumption of liability for pollution found in nearby water source	No	No	No	No	No	Yes	Yes	Yes	No	

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Waste	Regulatory Agency	Railroad Commission	Oil and Gas Conservation Division	Colorado Oil and Gas Conservation Commission	Wyoming Oil and Gas Conservation Commission [111]	Industrial Commission and Department of Health	ODNR Division of Oil and Gas Resources	Office of Oil and Gas	Department of Environmental Protection	Oil Conservation Division	
	Fracking Fluid	1.recycling or reuse encouraged 2.underground injection well [112]	Recycle or underground injection	1.Recycling or reuse 2.Underground injection 3.Disposal at a commercial solid waste disposal facility 4.Land treatment or land application at a centralized E&P [exploration and production] waste management facility [113]	1.underground disposal 2.reuse	All the waste materials of exploration and production must be duly disposed of in an authorized facility [114]	1.Disposal by injection at a permitted Class II well (98 percent) 2.Recycling of flowback is not typically done 3.Nearly two percent is spread for dust and ice control. 4.A permit is required [115]	1.Reuse 2.Underground Injection 3.Transport to other state	1. treatment and discharge to surface water 2. underground injection 3. reuse 4. transportation to out-of-state facilities [116]	1. recycle, reuse 2. underground injection 3. discharge to surface water [117]	
	Pit Use	For temporary storage Permit is sometimes not required(Tex. Admin. Code tit. 16, § 3.8 d. 4.)	For temporary storage	Temporary and permanent	Temporary and permanent; permit required for all	Yes, for evaporation or for further disposal arrangements [118]	Yes, for temporary storage	Yes, for temporary storage	New rules eliminate the use of waste storage pits for unconventional operators [119]	Temporary and permanent pits; no permit required for closed-loop systems < "Permanent pit" means a pit used for collection, retention or storage of produced water or brine that is constructed with the conditions and for the duration provided in its permit, and is not a temporary pit.> [120]	
		Liner requirement	All pits must be lined. The liner shall be designed, constructed, and installed to prevent any migration of materials from the pit into adjacent subsurface soils, groundwater, or surface water at any time during the life of the pit. [121]	Concrete, steel, or geomembrane liner requirement [122]	Liners generally required; earthen pits allowed for some uses.	Requirements vary depending on conditions at the site and the pit's use	Sufficient impermeable [123]	1.Synthetic liner pursuant to the division's specifications 2.All pits used for the temporary storage of saltwater and oil field wastes shall be liquid tight [124]	An impermeable synthetic liner requirement except when the soil is deemed to prevent seepage, leakage, and overflows [125]	New Rule: The unconventional industry will be prohibited from utilizing pits to store drill cuttings and waste fluids. [126]	1. Geomembrane liners required for temporary pits 2. Each permanent pit must contain, at a minimum, a primary (upper) liner and a secondary (lower) liner with a leak detection system appropriate to the site's conditions; both must be geomembrane liners. [127]
		Closure time	All completion/workover pits used when completing a well shall be dewatered within 30 days and backfilled and compacted within 120 days of well completion. All completion/workover pits used when working over a well shall be dewatered within 30 days and backfilled and compacted within 120 days of completion of workover operations. [128]	Pit shall be closed within six months or twelve months after drilling operations cease. Closure time is different for different areas. [129]	Unless an extension approved by Director, a pit can be used for no more than 3 years for storage, recycling, reuse, treatment, or disposal of E&P waste or fresh water [130]	Site reclamation must be initiated within one (1) year of permanent abandonment of a well or last use of a pit. [131]	The contents of the pit or receptacle must be removed within seventy-two hours after operations have ceased. Earthen pit should be reclaimed within 30 days after operations have ceased. An extension may be granted by Director up to one year. [132]	2 months after the date drilling is completed in non-urban areas and 14 days in urban areas the well owner/agent shall empty and fill in all pits [133]	Six months after the completion of the drilling process [134]	1. An operator shall close a permitted permanent pit within 60 days of cessation of operation of the pit. 2. Temporary pits must be closed within six months from the date that the operator releases the drilling or workover rig. [135]	
Injection Wells/ Induced Seismicity	Permit requirements	A permit for a Class II disposal well " may be modified, suspended, or terminated if injection is likely to be or determined to be contributing to seismic activity." Completely discretionary and no guidelines. [136]	Each well requires notice and hearing before permit issued unless within an area permit that previously had public hearing Traffic Light System for risk management: wells that meet "Red light" standard shall be shut down in the event of increased earthquakes in area. For "yellow light" wells, the injection permit is temporary and wells must shut down every 60 days and bottom hole pressure readings taken [137]	Safeguards in permitting process to reduce likelihood of induced seismicity; limits on injection volume and rate, and requiring maximum allowable injection pressure to be set below the fracturing pressure for the injection zone Permit application review also includes evaluation of area for seismic activity [138]	The average and maximum disposal pressure The estimated minimum and maximum amount of water to be injected daily [139]	When applying for a permit for class II UIC wells, operators need to provide the agency with information including "the estimated bottom hole fracture pressure of the top confining zone", and "average and maximum requested surface injection pressure." [140]	Operators must run a complete suite of geophysical logs on newly drilled Class II disposal wells Installation of monitoring technologies required for new Class II application permits, including a continuous pressure monitoring system and automatic shutoff system. Also tougher permit requirements for drilling activities near faults and areas of seismic activity - must install monitoring equipment and cease activities for investigation if monitors detect seismic event greater than M 1.0. Additional permit requirements for Class II disposal wells on a well-by-well basis, including pressure fall-off testing, geological evaluation of potential faulting, seismic monitoring program, minimum geophysical logging suite, radioactive tracer or spinner survey	1. Conduct a detailed geologic investigation of subsurface features in the vicinity of the injection well. The investigation will assess for the presence of subsurface faults, fractures or potential seismically active features. 2.Operator shall provide proposed operating data: a. Average daily rate or volume of fluid to be injected b. Maximum daily rate or volume of fluid to be injected c. Average injection pressure d. Maximum injection pressure [141]	Although the state has not had earthquakes connected to fracking or deep wastewater injection wells, in addition to a well permit from the DEP, injection wells require a UIC permit from EPA to reduce the risk of induced seismicity. [142]		
	Monitoring/ Reporting	Monthly average injection rates, total monthly volumes, and maximum wellhead injection pressures for wells [143]	Proposed rules would require all disposal wells within an area of interest to record volumes and pressures daily, and report, at a minimum, weekly or as otherwise directed by the division. [144]	Injection volumes must be reported monthly [145]	Monthly reporting required of the type and source of the injected substance, the total amount injected, and the injected pressures and casing-tubing annulus pressure during injection . [146]	The average injection pressure must be reported monthly. [147]		The owner/operator of a liquid injection or waste disposal well must monitor daily and submit to the agency monthly the injection pressures and volumes. The Chief may require more frequent or continuous monitoring and more frequent reporting. **Wells permitted since 2012 also have operating conditions requiring continuous monitoring for injection pressure. ** [148]	Observation weekly of injection pressure, flow rate, and cumulative volume for produced fluid disposal operations; Recording of one observation of injection pressure, flow rate and cumulative volume at reasonable intervals not greater than 30 days [149]	Monthly water disposal report [150]	
	Pressure testing	Each disposal well, fluid injection well, and gas reservoir storage well must be pressure tested before injection operations begin and at least once every five years or more frequently if required by the permit. MIT: some wells need annual testing [151]	1.After operators obtain a disposal permit, a mandatory initial pressure test of casing tubing annulus must be passed before any injection operation. 2.for noncommercial disposal wells, subsequent mechanical integrity test (MIT) must be done once a year or once every 5 years based on injection volume. 3. for commercial disposal wells, subsequent MIT must be done once every 12 months. The test must be witnessed by an authorized representative of the Conservation Division [152]	Maximum surface injection pressure is calculated based on a default fracture pressure gradient of 0.6 pounds per square foot ("psi") of depth. The injection pressure is uniquely defined for each well [153]	Operators must provide the Commission staff the opportunity to witness all integrity tests The application to dispose of salt water shall include average and maximum disposal pressure [154]						

Public Citizen Texas		Oil and Gas Regulation/ Best Practices								
		TEXAS	OKLAHOMA	COLORADO	WYOMING	NORTH DAKOTA	OHIO	WEST VIRGINIA	PENNSYLVANIA	NEW MEXICO
	Regulatory solutions	Essentially none. The website states that "[a]t this time, the Commission has no data that links hydraulic fracturing activities to earthquakes." They refuse to acknowledge the problem, and therefore, offer no meaningful solution. However the Legislature recently funded the TexNet Seismic Monitoring Program, through UT's Bureau of Economic Geology, to deploy additional sensors around the state, and study and determine whether increased seismic activity is linked to the underground disposal of oilfield waste.	OCC has developed an earthquake response plan including disposal wells shut-in, injection volume reduction, or injection depth reduction for Western and Central Oklahoma. Recent agreement with operators also gives researchers "wells to study earthquake problem." Traffic Light System for risk management: wells that meet "Red light" standard shall be shut down in the event of increased earthquakes in area. For "yellow light" wells, the injection permit is temporary and wells must shut down every 60 days and bottom hole pressure readings taken [155]	Regulators ordered a temporary shutdown of an oil and gas wastewater disposal well east of Greeley in 2014 after seismologists detected two earthquakes in the area in less than a month [156]		The Commission can modify or suspend the well permit at any time. In addition the Commission may order the operator to cease injection of a well should it become noncompliant. [157]	Prohibited all drilling into the Precambrian basement rock		The state Department of Conservation and Natural Resources and the Department of Environmental Protection said they will spend \$531,000 on a network of seismic activity monitors at 30 stations across the state for three years. [158]	
			Homeowners can sue the oil and gas industry for injuries or property damage resulting from earthquakes [159]	Pending legislation [HB 1310] would hold operators strictly liable for their conduct if oil and gas operations, including hydraulic fracturing treatment or reinjection operation, cause an earthquake that damages property or injures an individual. [160]						
Tax Distribution/ Trust Fund	Policy		One percent of gross production (unconventional wells) returned to local government [161]	1. Half of the state severance taxes are credited to Local Government Severance Tax Fund 2. Approximately 49% of the rentals and royalties from mineral production on federal lands are returned back to the state of origin	Local government property (ad valorem) tax: Oil production is assessed at 100 percent of the prior year's market value of production. Local tax levies are applied to the assessed value. Local property taxes on gross production tax are collected directly by local governments and distributed to counties, schools, cities, and special districts based on the location of production and local mill levies [162]	Local governments retain the first \$5 million generated from the gross production tax, and 25 percent of additional revenue generated locally during each biennium [163]				Local Government Property (Ad Valorem) Tax. Local levies vary between 8 and 11 percent on taxable value [164]
	Money distributed to local gov per unconventional well		\$211,535 [165]	\$1,121,583 [166]	\$1,234,658	\$338,853 [167]				\$178,732 [168]
Disclosure of Chemicals		1. The supplier or service company shall provide to the operator of the well information concerning each chemical ingredient intentionally added to the hydraulic fracturing fluid not later than 15 days following the completion of hydraulic fracturing treatment(s) on a well 2. The operators need to submit information to FracFocus on or before a well completion report is submitted the Commission 3. Trade secret exemption [169]	Within 60 days of completion, operators must submit information to FracFocus or the Commission: 1. Trade name, supplier, and general purpose of each chemical. 2. Associated Chemical Abstract Service Numbers for each additive. 3. Total volume of "base fluid" used. [170]	Ingredients and concentrations must be posted on FracFocus website within 60 days of completion; trade secret protection but must include chemical family or other similar descriptor associated with such claim. [171]	Chemical additives, compounds and concentrations or rates proposed to be mixed and injected must be reported prior to use. [172]	All elements must be posted on FracFocus website with 60 days; no exceptions. [173]	Must report all chemicals and the maximum concentration of each chemical to division within 60 days; trade secret exception. [174]	Must disclose chemicals/additives and total volume of fluids used to agency; trade secret exception.	Within 30 days after completion of the well, a completion report containing chemical additives must be reported to the Department. [175]	Very detailed description of the hydraulic fluid composition and concentration listing each ingredient, the maximum ingredient concentration in each additive, the maximum ingredient concentration in the hydraulic fracturing fluid must be disclosed within 45 days; trade secret exception. [176]
Miscellaneous	*Indicates additional, significant findings from other states.	*In Arkansas, flow meters, or other measuring devices approved by the Director, must be installed on all Class II Disposal and Class II Commercial Disposal Wells. Permit Holders must submit accurate injection volume and pressure information, on no less than a daily basis, on a form prescribed by the Director. A formula is used by the Director to determine the maximum permitted injected pressure.		The Oil and Gas Health Information and Response program was created to respond to public concerns about health related to oil and gas activities. Clearinghouse of Oil and Gas Health Information COGC has been working to strengthen its oversight of oil and gas development in Colorado. Since 2011, together with governor's administration, they have crafted rules to lengthen distances between drilling and neighborhoods, reduce the effects of light, noise and odors, protect groundwater, cut emissions, disclose hydraulic fracturing chemicals, increase spill reporting, significantly elevate penalties and toughen requirements for operating in floodplains. They have also significantly expanded oversight staff, increased ease of access and volume of data available to the public, intensified collaboration with local governments, sponsored ongoing studies to increase understanding of impacts to air and water and adopted several formal policies to address health and safety issues brought about by new technologies and increased energy development. In January 2016, Commission approved new rules that amplify the role of local governments in siting oil and gas facilities near communities and further bridge the regulatory roles between state regulators and local jurisdictions.					Model procedure for meaningful public participation in permitting process Under the guidance of the Environmental Justice Advisory Work Group, DEP also developed the EJ Enhanced Public Participation Policy. The policy was created to ensure that EJ communities have the opportunity to participate and be involved in a meaningful manner throughout the permitting process when companies propose permitted facilities in their neighborhood or when existing facilities expand their operations.	

- [1] <http://www.occeweb.com/>
- [2] <http://cogcc.state.co.us/#/home>
- [3] <http://wogcc.state.wy.us/>
- [4] <https://www.dmr.nd.gov/oilgas/>
- [5] V.T.C.A., Natural Resources Code § 81.01013 Conflict of Interest. Only applies to employees
- [6] Oklahoma Constitution, Article IX Section 15

<http://www.blueprintsfordemocracy.org/model-state-contribution-limits-and-source-prohibitions/>

Oklahoma Ethics Law
TITLE 17, Corporation Commission § 48.

- [7] Colorado Oil And Gas Conservation Commission
2014 Annual Report 6, available at <https://www.colorado.gov/pacific/sites/default/files/SB181arCOGCC2014.pdf>
- [8] <http://governor.wyo.gov/media/news-releases/2014-news-releases/wyomingoilandgascommissionnameswatsonpermanentsupervisor>
- [9] <http://www.nd.gov/ndic/>
- [10] R.C. § 1501.05
R.C. § 1509.02
- [11] <http://www.dep.wv.gov/Documents/employeeaddress.pdf>
page:76

<http://www.dep.wv.gov/oil-and-gas/Impoundments/Documents/Impoundment%20Refernces/WV%20Code%2035-04.pdf>
§35-4-2. 2.3

[12] <http://www.dgs.pa.gov/Documents/Vol%20121%20-%20Entire%20Manual.pdf>
Page4-57

[13] <http://law.justia.com/codes/new-mexico/2013/chapter-70/article-2/section-70-2-5>

[14] W.S.1977 § 30-5-104

[15] Ohio R.C. § 1501.01, et.seq.

[16] W.Va. Code sec. 22-1-1(5)

[17] WEST VIRGINIA CODE §22-6-6.

<http://www.dep.wv.gov/oil-and-gas/Resources/Policy/Documents/Enforcement%20Policy.pdf>

[18] http://www.emnrd.state.nm.us/OCD/documents/Enforcement_guidelines.pdf

[19] <http://www.occeweb.com/News/FY14%20ANNUAL.pdf>

page 29

- [20] http://cogcc.state.co.us/documents/about/TF_Summaries/GovTaskForceSummary_FieldInspectionUnit_Overview.pdf
- [21] http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/Annual_Report/2014/2014_Annual_Report_for_web_July1.pdf
- [22] <http://www.rrc.state.tx.us/oil-gas/complaints/>
- [23] Rules 522.a.(4) and 503.b.(4);Rule 522.b.(4) and 503.b.(4)
- [24] <http://www.rrc.texas.gov/media/29356/fy-15-oil-and-gas-enforcement-data-revised-4th-qtr.pdf>
- [25] http://cogcc.state.co.us/documents/complaints/Complaint_Detailed_Report_2016_3_8_2016
- [26] http://apps.ohiodnr.gov/oilgas/rbdmsreports/Reports_Corrections.aspx
- [27] https://apps.dep.wv.gov/oog/svsearch_new.cfm?pageType=viol
- [28] <http://www.emnrd.state.nm.us/OCD/statistics.html>

<https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-41177>

[29] 1. <http://www.statutes.legis.state.tx.us/Docs/NR/htm/NR.81.htm> Section 81.0531

2. V.T.C.A., Natural Resources Code § 85.381

[30] Criminal:
52 Okl.St. Ann. § 278
52 Okl.St. Ann. § 247
[31] 2 CCR 404-1:523 (c)
[32] W.S.1977§ 30-5-119
[33] NDCC 38-08-16
[34] <http://codes.ohio.gov/orc/1509.33v1>
[35] <http://www.legis.state.wv.us/WVcode/ChapterEntire.cfm?chap=22&art=6>
§ 22-6-34. Offenses; penalties.
§ 22-6A-19. Offenses; civil and criminal penalties
[36] <http://www.legis.state.pa.us/cfdocs.legis/LI/consCheck.cfm?txtType=HTM&ttl=58>

58 P.S. § 3256. Civil Penalties

[37] New Mexico Statute Chapter 70
70-2-31. Violations of the Oil and Gas Act; Penalties.

[38] <https://cogcc.state.co.us/Hearings/HearingGuide.htm>

[39] <http://wogcc.state.wy.us/>

[40] NDCC 54-57-03

[41] <http://www.legis.state.wv.us/wvcode/ChapterEntire.cfm?chap=22c&art=9>
§22C-9-4
§22C-9-10

[42] <http://ehb.courtapps.com/content/2014AnnualReport.pdf>
page 3

[43] <http://www.emnrd.state.nm.us/OCD/hearings.html>

[44] 16 TAC § 1.121

[45] <https://www.occeweb.com/FY13%20Annual%20Report%20FOR%20PRINTING.pdf>
page 13

[46] <https://cogcc.state.co.us/Hearings/HearingGuide.htm>

[47] <http://soswy.state.wy.us/Rules/RULES/7930.pdf>

[48] <https://www.dmr.nd.gov/ndgs/documents/newsletter/2007Winter/OGhearing.pdf>

[49] <http://www.legis.state.wv.us/wvcode/ChapterEntire.cfm?chap=22c&art=9>
§22C-9-4

Of the three members appointed by the governor, one shall be an independent producer and at least one shall be a public member not engaged in an activity under the jurisdiction of the public service commission or the federal energy regulatory commission. The third appointee shall possess a degree from an accredited college or university in petroleum engineering or geology and must be a registered professional engineer with particular knowledge and experience in the oil and gas industry and shall serve as commissioner and as chair of the commission.

[50] <http://ehb.courtapps.com/content/Bios.php>

<http://www.legalspan.com/catalog2/faculty.asp?UserID=2004031124724281046%20%20%20%20%20%20%20&OwnerColor=%23003366&recID=20091026-150226-74531>

<http://www.legalspan.com/catalog2/faculty.asp?UserID=2004031124724275153%20%20%20%20%20%20%20&OwnerColor=%23003366&recID=20101025-150226-85254>

<http://www.legalspan.com/catalog2/faculty.asp?UserID=20130117229194122659%20%20%20%20%20%20%20&OwnerColor=%23003366&recID=20130815-229194-145350>

<http://www.legalspan.com/catalog2/faculty.asp?UserID=20130117229194130524%20%20%20%20%20%20%20&OwnerColor=%23003366&recID=20121009-229194-104006>

[51] <http://www.emnrd.state.nm.us/OCD/hearings.html>

[52] "http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/OG_Compliance", "Department Data Information System.

[53] [http://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=78](http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=78)
(b)(1)

[54] <http://www.occeweb.com/ad/FeeScheduleFY2013.pdf>

[55] 2 CCR 404-1: Appendix III

[56] <http://soswy.state.wy.us/Rules/RULES/7928.pdf>
Section 8 (a)

[57] <https://www.dmr.nd.gov/oilgas/rules/rulebook.pdf>
43-02-03-16

[58] <http://oilandgas.ohiodnr.gov/portals/oilgas/pdf/FEE-SCHEDULE.pdf>

[59] W. Va. Code St. R. § 35-4-526; §35-8-5

[60] <http://www.pacode.com/secure/data/025/chapter78/chap78toc.html>

§ 78.19. Permit application fee schedule.

[61] [http://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=78](http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=78)
(b)(4)

[62] Okla. Admin. Code 165:5-3-1(b)(1)

[63] 2 CCR 404-1: Appendix III

[64] <http://soswy.state.wy.us/Rules/RULES/7929.pdf>
Section 5(a)

[65] http://iogcc.ok.gov/Websites/iogcc/images/2013_SOS/NorthDakota2012.pdf

page 5

[66] <http://oilandgas.ohiodnr.gov/portals/oilgas/pdf/FEE-SCHEDULE.pdf>

[67] <http://www.dep.wv.gov/oil-and-gas/GI/Forms/Documents/UIC%20APPLICATION%20PACKAGE%2006-25-2014.pdf>

[68] <http://www.pacode.com/secure/data/025/chapter78/chap78toc.html>

§ 78.11. Permit requirements

§ 78.15. Application requirements

§ 78.19. Permit application fee schedule.

[69] http://cogcc.state.co.us/documents/about/TF_Summaries/GovTaskForceSummary_Environmental_OGLA.pdf

[70] www.rrc.state.tx.us/oil-gas/compliance-enforcement/hb2259hb3134-inactive-well-requirements/cost-calculation

[71] <http://www.occeweb.com/rules/CH10eff09-12-14searchable.pdf>
165:10-1-12.(a)

<http://okwnews.com/news/whatzup/whatzup-politics/111018-legislators-vote-to-extend-well-plugging-fund-5-more-years.html>

<ftp://occ.state.ok.us/OCCFILES/instruct.htm#1006DINST>
Form 1006D

[72] <https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=6438>
rule 706

[73] WOGCC Rules
Chapter 3 Section 4 (b)

[74] <https://www.dmr.nd.gov/oilgas/rules/rulebook.pdf>
43-02-03-15. BOND AND TRANSFER OF WELLS.

[75] <http://codes.ohio.gov/orc/1509.225v1>

[76] W. Va. Code, § 22-6-26; §22-6A-15

[77] <http://www.pacode.com/secure/data/025/chapter78/chap78toc.html>

§ 78.303. Form, terms and conditions of the bond.

[78] [http://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=T&app=9&p_dir=F&p_rloc=164960&p_tloc=14567&p_ploc=1&pg=2&p_tac=&ti=16&pt=1&ch=3&rl=78](http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=T&app=9&p_dir=F&p_rloc=164960&p_tloc=14567&p_ploc=1&pg=2&p_tac=&ti=16&pt=1&ch=3&rl=78)

[79] <http://www.occeweb.com/rules/CH10eff09-12-14searchable.pdf>
165:10-1-10. (a)

[80] <https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=6438>
rule 706

[81] WOGCC Rules
Chapter 3 Section 4 (b)

[82] <https://www.dmr.nd.gov/oilgas/rules/rulebook.pdf>
43-02-03-15. BOND AND TRANSFER OF WELLS.

[83] W. Va. Code, § 22-6-26; §22-6A-15

[84] <http://www.pacode.com/secure/data/025/chapter78/chap78toc.html>
§ 78.303. Form, terms and conditions of the bond.

[85] <http://wogcc.state.wy.us/>

[86] <http://www.ndhealth.gov/aq/oilgaswell.aspx>

[87] <http://www.dep.pa.gov/Business/Air/BAQ/Permits/Pages/default.aspx#.VnsDJ5ODGko>

[88] <http://www.rrc.state.tx.us/about-us/resource-center/faqs/oil-gas-faqs/faq-flaring-regulation/>

[89] OKLA. ADMIN. CODE § 165:10-3-15 (b).

[90] https://www.colorado.gov/pacific/sites/default/files/003_030614-729AM-R3-6-7-fact-sheet-003_1.pdf page4

[91] <http://soswy.state.wy.us/Rules/RULES/7928.pdf>
Section 39. Authorization for Flaring and Venting of Gas (b)

[92] North Dakota Century Code 38-08-06.4

[93] OAC 1501:9-9-03 (k)
1509.20 ORC, 1501:9-9-05 (B) OAC

[94] http://www.dep.state.pa.us/dep/deputate/airwaste/aq/permits/gp/Comparison_Table_CSSD-Colorado-PA-Ohio-WV-EPA-Air_Standards-2014-05-28-1530.pdf
<http://apps.sos.wv.gov/adlaw/csr/readfile.aspx?DocId=1450&Format=PDF>

[95] 1. http://www.dep.state.pa.us/dep/deputate/airwaste/aq/permits/gp/Comparison_Table_CSSD-Colorado-PA-Ohio-WV-EPA-Air_Standards-2014-05-28-1530.pdf

2. <http://paenvironmentdaily.blogspot.com/2013/08/dep-finalizes-air-quality-permit.html>

[96] <http://www.emnrd.state.nm.us/OCD/documents/SearchablePDFofOCDTitle19Chapter15created3-2-2012.pdf>
19.15.18.12 CASINGHEAD GAS

[97] <http://www.owrb.ok.gov/supply/watuse/gwwateruse.php>

[98] <http://www.swc.nd.gov/Data/swcftp/webfiles/Fact%20Sheet.pdf>

[99] <http://www.ncsl.org/research/environment-and-natural-resources/state-water-withdrawal-regulations.aspx>

[100] <http://www.nmlegis.gov/sessions/03%20Regular/FinalVersions/HB0976AGS.pdf>

[101] <http://texaswater.tamu.edu/water-marketing/acquiring-groundwater-and-surface-water.html>

[102] <https://westernstateengineers.files.wordpress.com/2011/11/wickerfall2011.pdf>
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[103] <http://www.swc.nd.gov/Data/swcftp/webfiles/Fact%20Sheet.pdf>

NDCC 61-04-02: Permit for beneficial use of water required

[104] 1. ORC 1521.16
2. ORC 1501.33

[105] <http://www.dep.wv.gov/WWE/wateruse/Pages/FracWaterReportingForm.aspx>

[106] <http://www.ncsl.org/research/environment-and-natural-resources/state-water-withdrawal-regulations.aspx>

[107] N. M. S. A. § 72-5-13

[108] COLO . CODE REGS . § 404-1:205A (b)(2)(A)(viii)

[109] 1. Id.
2. NDCC, 61-03-23 Penalties—Civil
NDCC, 61-04-30 Penalties

[110] <http://www.ose.state.nm.us/WR/>

[111] <http://wogcc.state.wy.us/>
[112] <http://www.rrc.state.tx.us/oil-gas/applications-and-permits/environmental-permit-types-information/recycling/>
[113] COLO . CODE REGS . § 404-1:907(d)
[114] North Dakota Administrative Code 43-02-03-19.2
[115] 2 from Stronger
1&3.from <http://oilandgas.ohiodnr.gov/industry/underground-injection-control>
4. from ORC1509.22 (B)(2)(a)
[116] <http://www.strongerinc.org/wp-content/uploads/2015/04/Final-Report-of-Pennsylvania-State-Review-Approved-for-Publication.pdf>
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[117] 1. from 19.15.17.12
[118] <http://www.waterworld.com/articles/wwi/print/volume-28/issue-5/regional-spotlight-us-caribbean/fracking-wastewater-management.html>
[119] http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/PublicResources/DEP_Chapter_78_Webinar_030915.pdf

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<http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/PublicResources/CHAPTERS%2078%20AND%2078a.pdf>

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[120] N.M. Admin. Code 19.15.17
[121] Tex. Admin. Code tit. 16, § 3.8(d)(4)(G)
[122] OKLA. ADMIN. CODE § 165:10-7-20 (b).
[123] 43-02-03-19.3
[124] 1. from ORC 1509.22 (c)(6)
2. from OAC 1501:9-3-08
[125] W. Va. Code St. R. § 35-3-14
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[138] http://cogcc.state.co.us/documents/about/TF_Summaries/GovTaskForceSummary_Engineering%20UIC%20Wells.pdf
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[140] North Dakota Administrative Code 43-02-05-04

[141] <http://www.dep.wv.gov/oil-and-gas/GI/Forms/Documents/UIC%20APPLICATION%20PACKAGE%2006-25-2014.pdf>
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[142] <http://triblive.com/business/headlines/9178658-74/state-pennsylvania-activity>

[143] <http://www.rrc.state.tx.us/about-us/resource-center/faqs/oil-gas-faqs/faq-injection-and-disposal-wells/>

[144] <http://earthquakes.ok.gov/what-we-are-doing/oklahoma-corporation-commission/>

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[165] Id.

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