

## Well wastes for Pennsylvania

All derived from tables in EPA, 2000, EPA Office of Compliance Sector Notebook Project: Profile of the Oil and Gas Extraction Industry

*Except for pH, all values are mg/l unless noted*

	Table 7 Devonian Gas Wells Brine (range)	Table 6 Venango Co. Oil Well Brine (average)	Table 9 Devonian Gas wells Drilling Fluids (average)	Table 12 Produced Water Pit Sediments (range)	Drinking Water Standards MCL (EPA 2003)
pH <sup>a</sup>	3.1-6.47	6.4	9.57		6.5-8.5
Total Suspended Solids	8-5,484	130	87		
Total Dissolved Solids <sup>a</sup>	139,000-360,000	58,839	3,399		500
Chloride <sup>a</sup>	81,500-167,448	33,356	1,547		250
Oil & Grease		18.6	11.9	640-540,000	
Metals					
Iron <sup>a</sup>	39-680	34	145		0.3
Aluminum <sup>a</sup>	<0.5-83	0.73	4.601		0.05-0.2
Manganese <sup>a</sup>	3.59-65	1.294	2.284		0.05
Arsenic	.005-1.51	0.273	0.032	<0.01-0.031	0.01
Barium	9.65-1740	55.7	2.5	0.07-19.1	2
Cadmium	<0.02-1.21	0.036		<0.05	0.005
Lead	<0.02-10.2	0.288	0.785	<0.1-0.27	0.015
Sodium	37,500-120,000	13,417	777		no regulated limit <sup>b</sup>
VOCs					
Benzene		1.907		0.0006-0.25	0.005
Ethylbenzene		0.107		0.0013-0.049	0.7
M-xylene		1.057		0.0011-1.78	10
Toluene		1.885		0.001-0.27	1
Radionuclides					
natural uranium				0.874-2.95	0.03
<sup>226</sup> Radium (pCi/kg)				6.57-1,344	5 pCi/l combined
<sup>226</sup> Radium (pCi/kg)				13.8-1,639	

<sup>a</sup> These items are included in the National Secondary Drinking Water Standards (EPA, 2003), contaminants that cause cosmetic or aesthetic effects in drinking water and are non-enforceable federal standards.

<sup>b</sup> Sodium causes crusting of soils and can inhibit absorption of water.

*pH, total dissolved solids, chloride, iron, detergents (MBAs) required for WV water test.*

*WV Water Pollution Control Permit tests pH, "settleable solids", chloride, oil and grease, iron, and monitors aluminum and manganese.*

For the Sootypaws blog: <http://sootypaws.livejournal.com>

**Sources:**

Environmental Protection Agency. 2000. *EPA Office of Compliance Sector Notebook Project: Profile of the Oil and Gas Extraction Industry*. Washington, DC: United States Environmental Protection Agency, Office of Compliance, Office of Enforcement and Compliance Assurance, EPA/310-R-99-006.  
<http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/oilgas.pdf>

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