

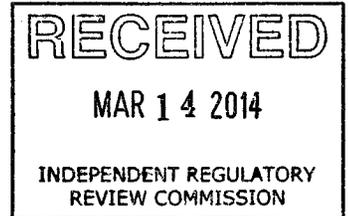


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**LEAGUE OF WOMEN VOTERS®  
OF PENNSYLVANIA**

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**Summary Comments to the  
Regarding the Proposed Oil and Gas Regulations**

The League of Women Voters of Pennsylvania thanks you for your numerous public hearings and opportunities to provide input into these important regulations. As you review all of the comments, we urge you to be guided by Article 1, Section 27 of our Constitution: *The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.*

Err on the side of preservation and protection rather than degradation and devastation. Replace the word *regulated with pollutional* in reference to substances addressed by this proposal to reduce environmental risks.

We believe the following changes are critical in promoting public health and well-being:

- eliminate open pits for wastewater, production fluid, and flowback and replace them with closed tanks with optimal leak protection;
- eliminate the use of brine from unconventional wells for de-icing and dust control;
- monitor radioactivity of all oil and gas well products— solids, liquids, and gases on an on-going basis;
- include tracers to all chemicals used to frack wells for liability purposes;
- expand water testing parameters to petroleum distillates, heavy metals, and radioactivity;
- include regulations for production pipelines and those carrying fracking, reused, flowback, produced, and/or waste water.
- monitor air quality downwind of well pads and compressor stations continuously;
- treat each well pad as a superfund site where storage and reprocessing of wastewater are minimal, if at all.

To make the document more user-friendly, include the complete text of cited documents for reader understanding – not just reference them.

For the benefit of taxpaying citizens: increase all fees and bonding to cover real and anticipated costs to avoid passing on expenses to Pennsylvanians of today and the future; and establish a super fund to cover unforeseen consequences.

All such regulations should include provisions for a periodic, 5-year review and updating so they can keep pace with technological advances and codify more advanced “best” practices. “Beneficial” uses should not be authorized without objective, peer-reviewed scientific studies to determine long-term impact.

Finally, consider the needs of conventional drillers while recognizing the potential for such wells to morph into sites for unconventional natural gas extraction processes.

Thank you for your consideration.

A handwritten signature in cursive script that reads "Susan Carty".

Susan Carty, President



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**League of Women Voters of Pennsylvania  
Comments to the  
Environmental Quality Board  
Regarding the  
Proposed Oil and Gas Regulations**

**Introduction**

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Finally, consider the needs of conventional drillers while recognizing the potential for such wells to morph into sites for unconventional natural gas extraction processes.

**The Following Comments are Based on Nine Sets of Oral Comments Presented by League Leaders at the Nine Public Hearings Held in January and February of 2014**

Oral Definitions are critical for understanding. In addition to those items mentioned in the below comments, it is important that you understand that our reference to “best practice” speaks to specific procedures and processes that are optimum at that point in time. Given the evolving nature of technological advances and environmental studies, the League’s intent is to assure the public that their Constitutional rights are being protected over time.

In regard to definitions at the beginning of the document and through reference to other regulations, the League wishes to provide the following input for your consideration:

*Approximate original condition* should go beyond general surface configuration, land use, and complementary drainage patterns. Re-vegetation must be specified with reference to native species, size of trees, and similar factors to prevent degradation to sensitive environments and water resources. This is true not only for the well pads but also for the pipelines – many of which are unregulated in Class 1 areas. Eliminate language

such as “to the extent practicable” with clearer parameters including cost, feasibility, and long-term value. Criteria need to be established and reviewed with objectivity to reduce environmental *risks* and the negative impact of cumulative development.

*Burrow pits* that are earth disturbances for construction purposes should be clarified to specify “facilities that are related to oil and gas development.” It needs to be clear if “facilities” include compressor stations, pipelines, export terminals, storage tanks and/or processing facilities.

*Centralized impoundment* requires clarification. Must such a facility include all or one of the following three descriptors listed since there is no *and* or *or* within the items? Certainly regulation surrounding each should be distinct as a depression or diked area formed primarily of earthen materials for fluids is different from semi-fluids and wastewater, flowback and mine influenced waters are very different by definition. Mine influenced water could be acid mine drainage that is considered hazardous as opposed to wastes from oil and gas industries that are not defined or regulated in the same way. This should be clarified to avoid problematic interpretation.

*Condensate* should be delineated beyond the industry standard by including a comprehensive, continually up-dated lists of substances so classified. This is particularly important in dealing with environmental protection, leaks, and public health risks.

*Containment systems* are critical and should be defined in such a way as to provide the public with assurance that they will, in fact, hold spilled substances to the ground surface or off the well site. Lists should be provided based on what substances the system is designed to contain. Please define “Other Materials” such as the substance “synthetic liners are made of and what type of coating will be used.

*Conventional formation* should not be defined relative to what it is not included. Specificity is required.

*Conventional wells*, with reference to the above definition, is problematic. Clarification is needed in the instances where conventional wells become unconventional wells.

*Freeboard* seems convoluted. We believe it is simply the shortest distance between the top of the contained liquid and the open, secure container that is holding it.

*Freshwater impoundment* should be limited to holding only surface water and groundwater that is, in fact, freshwater. Other liquids, such as acid mine drainage or min-influenced water could become approved and held without adequate safeguards.

It should be made clear that no acid mine drainage or other industrial wastewater has been added under this definition.

*Gathering pipelines* may also take natural gas to processing facilities. The starting point of gathering lines should also be specified as well as their termination. It should be clear where a production line ends and a gathering line begins.

*Mine-influenced water* should not include waters influenced by oil and gas operations. It should be limited to what is commonly considered mine as for ore, coal, etc.

*Oil and gas operations*, as listed, should be referenced in such definitions as previously cited burrow pits.

*Pre-wetting* needs clarification as to the use of the brine for antiskid purposes. In what circumstances would it be used –around sharp turns, only under certain weather conditions, or other condition? This could result in an unlimited “beneficial” use of a solution that puts the environment and our water resources at risk.

*Process or Processing* must go beyond the meaning provided in the Solid Waste Management Act given the presence of heavy metals, biocides, radioactive substances, and other known and unknown toxins. In spite of existing regulatory exceptions, substances processed should be considered and treated as hazardous.

*Regional ground water table* should be more specific in terms of seasonal, long-term and short-term fluctuations.

*Regulated substances* must be defined as pollutional substances. This is imperative for adequate preservation and protection.

*Reportable release of brine* is problematic given that some is emitted in various “beneficial uses.” All releases should be reported along with their intended uses.

*Temporary pipelines*, must be given fixed timelines given the potential for fracking and re-fracking wells over time and the long-term residual wastes that accompany such natural gas production. They are a threat to waters of the Commonwealth and must be defined more restrictively. Definitions should include criteria as to contents, composition, protective coatings, welding/connections, diameter, operational pressure, and so on to reduce risk.

Water purveyor needs clarification. Could those corporations involved with natural gas operations be subject to PL 842, No. 365 as persons (under the Supreme Court Citizens

United decision) and hence develop their own source of water that may jeopardize public and/or private supplies?

*Water sources* are all inclusive. It needs clarification. Are waters used for completing a well in an unconventional formation inclusive of chemicals and natural substances added to it? Does it include the reuse of flowback or produced waters or other fluid that may be used to complete such a well? Should the word "permitted" be added relative to waters that may be discharged in the Commonwealth? (Please clarify.)

*Water supply* needs specificity as to "legitimate beneficial uses" that must be based on long-term scientific, peer-reviewed studies as to environmental benefit as opposed to risk for such use.

*Well operator or operator* may, by definition, include those who are trying to plug wells to prevent long-term consequences. How does one determine intent or purpose of such an act to avoid mis-identification. A storage operator should be defined separately given the nature of duties and responsibilities.

*Well site* should be limited to the permitted area and not be inclusive of facilities necessary or "incidental" to the drilling, production or plugging of a well.

The following comments are a sequential compilation of comments presented at public hearings held throughout the Commonwealth by members of the League of Women Voters of Pennsylvania.

In regard to section 78.15 Application Requirements, the mandatory notification by those seeking well permits within close proximity of public resources to the appropriate agency is an important first step. Given the nature of subcontracting in the industry, the identification of parent/subsidiary business entities is a key second step. However, the League suggests the following:

- Post electronically and simultaneously the entire text of all well permit applications grouped by watersheds and political subdivisions. This should be in an easily accessible and user-friendly format on a website for public review.  
[78.15 (a)]
- Provide proof of consultation with the Pennsylvania Natural Heritage Program (PNHP) for State and Federal threatened or endangered species extended to all ecologically significant species and communities. Given rapidly increasing rate of environmental degradation and evolving issues related to climate change, the

broader the purview, the greater protection of our Constitutional rights. [78.15 (d)]

- Avoid duplication via a permit under 25PA.Code 102.5 but trigger the initiation of the 78.15 process when modifications or renewals of permits occur. [78.15 (e)]

- Expand distances around proposed surface locations. The proposed 200-foot distance from these sites is inadequate as degradation from noise, light, and air pollutants that extend beyond such a boundary.. The 1000-foot distance from a drinking water source is inappropriate. Penn State University<sup>1</sup> notes that homeowners receive notification by certified mail of unconventional wells within 3000 feet of their water wells or springs. Should not those agencies that protect our rights as citizens receive and comment on permits within these same parameters? As taxpayers, public lands belong to us. To safeguard the public health, the distance should be one kilometer or more as evidenced by the Duke study.<sup>2</sup> [78.15 (f) (1)]

- Extend the fifteen-day period for the public resource agency recommendations to the department. This is an inadequate timeframe for a comprehensive review, analysis, and response. The national park review<sup>3</sup> should be the minimum standard used to protect Pennsylvania's public sites. [78.15 (f) (2)]

- Allow the public - not the applicant –to determine a description of the function and uses of the public resource required by the permit application. [17.15 (f) (3) (ii)] and

- Include conditions in the permit for cumulative as well as site specific modifications to avoid and mitigate impacts to public resources. The Constitutional rights of Pennsylvanians should take precedence over the optimal development of oil and gas resources. It should not be the Department's burden of proving that the conditions were necessary to protect against a probably harmful impact of the public resource. It should be the industry's responsibility to prove their actions will not be harmful and their executives should be held

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<sup>1</sup> <http://extension.psu.edu/natural-resources/water/marcellus-shale/drinking-water/gas-well-drilling-and-your-private-water-supply>

<sup>2</sup> [http://sites.nicholas.duke.edu/avnervengosh/files/2012/12/PNAS\\_Jacksonetal2013.pdf](http://sites.nicholas.duke.edu/avnervengosh/files/2012/12/PNAS_Jacksonetal2013.pdf)

<sup>3</sup> [http://www.nps.gov/frhi/parkmgmt/upload/GRD-M-Shale\\_12-11-2008\\_high\\_res.pdf](http://www.nps.gov/frhi/parkmgmt/upload/GRD-M-Shale_12-11-2008_high_res.pdf)

them financial and criminally responsible for damages to public resources. 78.15  
(g)

In regard to 78.17, the League recommends that permit renewals be electronically posted for public access consistent with the recommendation for all permit applications.

We support the addition of 78.18 Disposal and enhanced recover well permits to the proposed regulations. However, we suggest these relatively new hazards be examined with greater scrutiny consistent with environmental impact studies of the National Environmental Policy Act (NEPA).

The permit application fee schedule (78.19) is inadequate and should be significantly increased. They should be based not only on depth of the well bore, but the number and length of horizontal bores from each vertical bore. [17.19 (a)] Consider additional fees for multiple fracking of a well given increased risk and the inclusion of premium fees related to evolving technologies such as "super fracking."<sup>4</sup>

Even with local zoning rights retained, the League applauds the use of conferences and panels as a means to allow surface landowners to object to well locations and/or misinformation within the application. Provisions for objectivity and accountability of decision makers should be delineated, monitored, and enforced with safety, health and economic impact to landowners given priority. [78.25] All time lines should be extended, given cause, to promote adequate consideration. [78.29-78.33]

Relative to Environmental Protection and Performance Standards, the League is pleased to note the inclusion of "site specific" plans, precautions relative to orphaned and abandoned wells, fencing requirements, and posting of contents and warning labels. We make the following recommendations:

- Include e-mail notification procedures. [78.51 (b)]
- Given the significant threat and consequences of water contamination,<sup>5</sup> investigate incidents as soon as possible within the 10-day period following a request. Applicability

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<sup>4</sup> <http://www.businessweek.com/magazine/like-fracking-youll-love-super-fracking-01192012.html>

<sup>5</sup> <http://dfw.cbslocal.com/2014/01/05/texas-among-states-with-complaints-of-contaminated-water-from-drilling/> and <http://usnews.nbcnews.com/news/2014/01/05/22190011-oil-and-gas-drilling-pollutes->

should include well site construction given the consistently documented problems related to improper casing and regulatory needs delineated by STRONGER.<sup>6</sup> [78.51 (c)]

- Designate that costs incurred by individuals to document pre-drilling water quality (as specified by an independent accredited laboratory) are to be passed on to the operator. [78.52 (b)]
- Require all written correspondence related to potential contamination and testing be sent by registered mail. [78.52]
- Because of the potential for serious contamination, include identification of abandoned and orphaned wells through advertisements in local newspapers (3 or more times), posting in municipal buildings (30-days), specific seismic testing, and on-the-ground surveillance to note pipes, casings, depressions, small sheds and/or pits. [78.52 (b)]
- Assure compliance for erosion and sediment pollution control specific to special protected waters under the Clean Streams Act. [78.53]
- Distribute copies and revisions of control disposal plans and emergency response plans to local emergency response groups, county conservation districts, and municipal offices to promote awareness and compliance; post electronically for public review. [78.55 (d)(d.2)]
- Limit storage and containment to closed tanks to reduce health hazards and environmental risks; reinsert the word pollutional rather than regulated substances given loopholes in regulations relative to the oil and gas industry; and omit the use of pits, and other approved storage structures throughout the section on containment. [78.56]
- Define recompleting the well; [78.56 (a) (1)]
- Eliminate modular aboveground storage structures unless they are comparable to closed tanks and, if used, extend notification periods from 3 to 10 business days. [78.56 (a)(2)]

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well-water-states-confirm

<sup>6</sup> <http://strongerinc.org/sites/all/themes/stronger02/downloads/Final Report of Pennsylvania State Review Approved for Publication.pdf>

- Eliminate pits and open storage structures as referenced in 78.56 (2)(3)(4); if maintained, increase freeboard to 3 feet at all times given frequency and volume of recent storm-related precipitation. [78.56 (a) (2)(3)]
- Given the unknown hazards of drill cuttings, fracking fluid, wastewater, and emerging gases, omit the use of pits and storage structures unless closed; limit the use of pits to potable water; maintain parameters for liners and pit construction to optimize water containment. (78.56 (a) (4) (8)]
- Determine seasonal high water table over a 12-month period; hold operator accountable for findings given the implications of flooding.[78.56 (a) (9)(iii)(11)]
- Extend notification for installation of pit liners to 10 business days; limit certification of pit compliance to employees of the Department. [78.56 (a) (9)(v)(16)]

The control and storage of production fluids (Section C) is vital given the toxicity and unknown nature of production fluids. The prohibition against the use of open top structures to store brine and other produced fluids during the operation of the well is of utmost importance. [78.56] However, the League strongly advocates that open top structures be prohibited for the containment of **all** produced fluids, volatile organics, and other wastes. [78.57] This should be without exception.<sup>7</sup> No pit should be allowed – even under the Clean Streams Law - except for a very limited time (perhaps as long as 30 days) during an emergency [78.57(c)]. All liners and waste products must be disposed using best practice at off-site locations certified for hazardous materials. In addition to the secondary containment and additional safeguards around tanks to prevent unauthorized access, all tanks should be installed above ground for easy access and monitoring (78.57(d)). Supplemental precautions must be added to avoid consequences like those from the tank leak in West Virginia.

Onsite processing [78.58] is unacceptable [78.58]. Processes, such as aerating fluids, should **not** be done at well sites or impoundment areas. Forms for processing drill cuttings here and elsewhere in the document must address impacts on air as well as land or water. [78.58(d)]. Because of federal loopholes that categorize oil and gas wastes as non-hazardous, the Solid Waste Management Act fails to provide adequate protection [78.58 (d)]. Further, the Department cannot assess the risks involved due to the unknown results of combining injected solutions with heavy metals, radioactive materials and other substances from deep below the earth. The League supports full

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<sup>7</sup> See *Shale Gas Extraction and Public Health* at <http://shale.palwv.org/wp-content/uploads/2013/12/846114-League-of-Women-Voters-Shale-Resource-Guide.pdf>

disclosure of pollution data.<sup>8</sup> Given expanding number of wells, the magnitude of unknown byproducts, and the numerous processing techniques, more staff must be hired to monitor and enforce all the proposed rules.<sup>9</sup>

In addition to pollution hazards, impoundments result in significant compaction of the soil due to the weight of stored liquids. The embankments, as specified [78.59a], are problematic in the draining of streams to downstream locations rather than moving the embankment to another site. [78.59a (a)(2)]. The stabilization practices [78.59a (9)] should be enhanced to prevent erosion and sedimentation problems stemming from cumulative impact of development and frequent severe weather emergencies. Anticipated climatic factors call for additional distances between the bottom of an impoundment and the seasonal high groundwater table [78.59b (e)]. To permit engineering controls to alter the ground water table erodes drinking water protection. [78.59b (e), 78.59c (d)] More stringent parameters must be put in place regarding restoration of impoundment areas. Restoration to "approximate" original conditions and "to the extent practical" is not adequate. Restoration should be to set to best-known practice or standards.

Freshwater impoundments must not be used for the storage of mine-influenced water. [78.59b(f)(g)(h)]. If used, this acid mine drainage should be stored in closed tanks. Operators should be required to pretest these hazardous fluids to determine their composition. Tracers should be added so that liability can be assigned when contamination occurs.

Centralized impoundments [78.59c] should be replaced by enclosed tanks because of the nature of hazardous substances stored within them. Proposed regulations are inadequate to prevent catastrophic risks to public health and the environment. Oversight of liner installation by manufacturers rather than Department inspectors is not appropriate. Even the most sophisticated detection systems, sump pumps, monitoring wells, and requirements to fill out forms to monitor leakage cannot prevent irreparable damages from impoundment releases. Water testing parameters need to be expanded throughout the document to include petroleum distillates, heavy metals, and radiation levels [78.59c (6). This is particularly true when provisions provide for "allowable" leaks through the primary liners that in some instances are dealt with "case by case!" [78.59c (4)(ix)]. Such language is not the intent of the League's recommendation for "site-specific" plans. To prompt strict compliance, certified

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<sup>8</sup> LWVUS natural resource position found at

<http://www.lwv.org/content/environmental-protection-and-pollution-control>

<sup>9</sup> The LWVUS supports inspection, monitoring and vigorous enforcement. See

<http://www.lwv.org/content/environmental-protection-and-pollution-control>

statements vouching for the testing, construction, and integrity must be tied to personal as well as corporate accountability with direct liability for any contamination. [78.59 (l)]. Pictures and drawings submitted by operators can be deceptive [78.59(m) (4, 7)].

When it comes to restoration, centralized impoundments should be treated as superfund sites [(58.59 (n)]. The possible 2-year restoration period beyond the 90-day timeline is unacceptable and fails to remove public risk in a timely manner. To meet citizen expectation, words such as “approximate” and “to the extent practical” must be eliminated in regard to restoration. Further, the ability of operators to ask for deviations from these requirements is asking for trouble [(78.59 (o)]. Best practices in restoration must be the standard.

In examining discharge requirements [78.60] and other sections of the proposal, The League requests that references to other related Pennsylvania codes by number be excerpted and placed as footnotes to promote understanding. Land application of any residual waste substance, fill, or dredge must be prohibited. In most cases, the composition of these wastes and their risks are unknown. We cannot afford to poison our land. It’s the source of our leading industry – agriculture. Bonds must be set higher to cover potential costs of consequences over a minimum of one hundred years. The 3 business day notification period to DEP should be extended to 10 to allow for appropriate monitoring of any disposal process[78.60 (5)]. Finally, restoration to lands where residual wastes have been applied should go beyond “revegetation” to best practice. While the regulations include compliance for chemical analyses based on documentation by the operator, consistent, boots-on-the-ground monitoring and enforcement promotes greater public trust [78.60 (d)].

Regulations for containment around oil and condensate tanks must be strengthened based on recent experiences in West Virginia [76.64].<sup>10</sup>

The League recognizes the need to regulate unconventional wells differently and more stringently than conventional ones [78.64a]. All pits and centralized impoundments should be prohibited. Only closed tanks should be used for all pollutorial materials – including fuel [78.64a (c)] and non-regulated wastes of unknown composition. League comments concerning containment and practices for conventional wells are also applicable to unconventional wells. Greater expectations are placed on operators to provide written standards of operational procedures, but they are not site specific. Reports, records, and documentation maintained by the operator for Departmental review must be accompanied by frequent on-site inspections. How else can it be

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<sup>10</sup> <http://www.nytimes.com/2014/01/13/us/critics-say-chemical-spill-highlights-lax-west-virginia-regulations.html? r=0>

determined that drill cuttings used in restoration are actually “uncontaminated [78.65 (a)(1)(b)?

Section C Environmental Protection and Performance Standards needs to be further revised. We begin with Reporting and Remediating Releases (78.66.) – a topic underscored by recent events previously mentioned in West Virginia and others within our own state. First, throughout this section and the entire document, the word “regulated” must be replaced by *pollutional* given that regulatory exceptions exist for substances involved in the oil and gas industry. Further, releases to the “pollution of water,” must be expanded to the pollution of water, *air, and land*. [78.66 (a)(A)(b)(1)(i)] Given that time is of the essence in combating releases, notification protocol throughout this section needs to be revised to be by telephone, e-mail, and/or text immediately after discovery - not within 2 hours or as practicable [78.66 (a)(A)(2)]. All such communication should be archived for future access. Because of the highly toxic nature of the substances used in natural gas operations, the 42 gallon limit should be reduced to 10 gallons so that more stringent remediation occurs. [78.66 (c)(1)]

A borrow pit or an earth disturbance created by excavation for oil and gas construction activities needs to be defined by size (78.1) and regulated accordingly by permit. Based on size and location, these pits have consequences to our water and land. It is not enough to just register location [78.67 (b)]. Restoration should be accomplished without two-year extensions of timelines and according to best practices [78.67(c)(2)].

The League applauds inclusion of Oil and Gas Gathering Lines (78.68) in the proposed regulations. However, the definition needs to distinguish between production lines and gathering lines. Smaller gathering lines that feed into larger gathering lines also need to be included (78.1).

Installation practices and environmental considerations for gathering lines must be consistent with current best practices for interstate transmission lines given their size and the pressure of natural gas transported [78.68 (b)(c)]. Because of the tendency for sink holes to form in carbonate geology present in our Commonwealth, permits for gathering lines must include this factor to prevent problems with pipeline integrity. The permitting process should also limit the number of gathering lines in a given area so that the footprint and risk of the infrastructure is minimized.<sup>11</sup> Without consolidation requirements, the cumulative impact of independent gathering lines from various operators in the same area is monumental.

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<sup>11</sup> For details see *Pipelines in Pennsylvania: A Case Study of Lycoming County and its Technical Appendix* found at <http://www.palwv.org/Issues/Natural-Resources/Pipelines.asp>

Horizontal direct drilling is only one of many alternatives for pipeline installation in areas of wetlands and waters. [78.68a] A protocol should be established for the use of each method. Permits would be awarded only to the best available practice based on site-specific conditions, particularly local geology, as determined by the County Conservation Districts. More stringent conditions for permitting should exist in exceptional value and high quality streams. To protect our water, drilling fluid additives, other than bentonite and water, must be shown to be safe in water supplies by independent testing before use in pipeline installations [78.68a (f)]. Further, in addition to notifying the Department prior to such drilling, operators should be required to notify water suppliers and treatment plants downstream [78.68a (b)]. Such notification would serve to promote closer monitoring and appropriate action in the event of accidental discharges or blowouts.

Section C Environmental Protection and Performance Standards include Temporary Pipelines for Oil and Gas Operations (78.68b). We commend the Department for including these pipelines based on the results of our study in Lycoming County.<sup>12</sup> We recognize that pipelines are the safest way to transport hazardous liquids and gases if they are appropriately installed and monitored with adequate precautions taken. Strict accountability standards as well as monitoring and enforcement are needed by outside agencies – not the operators - relative to their construction and on-going maintenance. [78.68b (i)] We suggest the following changes:

- Eliminate the word “temporary” as these lines may be in place for decades before the well site is restored due to multiple wells and multiple re-frackings on a given site. [See Definitions. (78.1.)]
- Replace the words “to the extent practicable” with “to comply with “best practice at the time of installation” so that joints and couplings are not incorporated in the crossing of watercourses or ponds into which toxic substances might escape [78.68b (d)].
- Shut off valves should not only be installed on both sides of temporary crossings but also every 50 feet along the line to limit contamination in the event of a rupture. These locations must be included in an emergency response plan and monitored on an on-going basis to assure working order. [78.68b (d and e)]
- Discharge limits of 1000 barrels of fluid needed for a shut-off valve are too high – particularly in areas of exceptional quality and high quality streams. Because of varying

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<sup>12</sup> See *Pipelines in Pennsylvania: A Case Study of Lycoming County and its Technical Appendix* found at <http://www.palwv.org/Issues/Natural-Resources/Pipelines.asp>

pressures and the potentially highly toxic content in the lines, 100 barrels would provide greater protection for our waters. [78.68b (e)].

- Highly visible flagging every 75 feet or less must be supplemented with motion sensitive devices with light and/or sound to prevent damage by wildlife, off-road vehicles, cross country skiers, hunters, and others [78.68 (f)].
- Records of pressure testing and daily use must be available to DEP as well as repairs [78.68 (g)(h)(i)(j)].
- Monitoring of the contents must be done to assure the public that flammable materials – even when mixed with other fluids - are not being transported through temporary pipelines [78.68(k)].
- Restoration must be completed to the highest standards to the original state to mitigate degradation and prevent changes in the hydrogeology over the long-term [78.68 (l)]. And finally,
- the location and contents of fluids transported through the pipelines as well as timelines for use must not only be provided to the Department on request, but automatically to all emergency responders in the area and County Conservation District personnel. [78.68(m)].

Relative to water management plans (78.69), the League advocate that the implementation requirements adopted by the more stringent regulations of the Delaware River Basin be imposed on the Susquehanna and Ohio basins and the Great Lakes Consortium. [78.69 (b)]. In addition to serving as aquatic habitats and tourist attractions, all of these rivers and lakes are significant sources of drinking water. Withdrawal and reuse plans need to be addressed both individually and cumulatively to determine environmental impacts on our waters [78.69 (b) (c)]. Because of recent weather extremes and the large volumes of water withdrawn by unconventional natural gas drilling, the expiration date of such plans should be reduced from 5 to 2 years. [78.69(e)] To underscore water protection, suspending and revoking a water management plan should be triggered by any violation – without warning and chances to comply [79.69 (g)]. Reason for denials by the Department should also include cumulative impact of withdrawals within the basin. Further, the industry should bear the burden of proof that a plan will not adversely impact water quality within the basin [78.69 (i)]. Operators must be site-specific in their plans and be held accountable for their actions.

The League believes that the road spreading of brine for dust control, road stabilization (78.70) and the pre-wetting, anti-icing and de-icing (78.70a) should be prohibited. While using natural brine may be more appealing than adding rock salt to fresh water, it comes with significant liabilities.

- First, its salt content is variable. As defined, brine content can range from 3.5% to 26% sodium chloride.<sup>13</sup>
- Second, salt stays in the soil for years until leached out by water. Soils with high salinity dehydrate roots and prevent absorption of necessary nutrients. Salt can act as an herbicide having detrimental impact on nearby crops. Wildlife, pets and other domestic animals that drink such run-off can also have adverse health impacts.
- Third, brine from conventional wells may contain other chemicals like corrosion inhibitors whose safety may be untested.<sup>14</sup> The regulations only require that free oil be separated from the brine before spreading [(78.70 (g)(1) and 70]. Without comprehensive testing and treating of brine to meet established safety standards, the risk of poisoning is too high.
- Fourth, because of increasing needs and costs to dispose of brine, there is a natural tendency to overuse brine on road surfaces that may not need treatment. This creates unnecessary hazards. While such brine has been limited to conventional wells, this may be difficult to monitor and enforce based solely on required paperwork [78.70(c) and 78.70a (c)(l)(n)(p)(r)(s)] or notice [(78.70 (k) and 78.70a (q)].
- Fifth, specific to de-icing, the brine should not be mixed with coal ash (78.70a (f) that creates additional hazards and those that use brine for such purposes should not be deemed to have a residual waste permit by rule. [78.70a (u)].
- Finally, annual plan approval, rate and frequency of application and other requirements are not adequate to allow this practice [[78.70 (d)(e)(f)(g)(h)(i)(j)(k)(l)(m)(n)(o) and 78.70 (e)(f)(g)(h)(i)(j)(k)(l)(m)(n)(o) (p) it seems highly probably, given the magnitude and cumulative impact of such brine spreading that it will enter bodies of water or watercourses or infiltrate our groundwater – the life source of future generations.

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<sup>13</sup> See <http://en.wikipedia.org/wiki/Brine>

<sup>14</sup> See [http://www.ohiogo.com/gas & oil/2014/01/03/well-s-brine-water-can-fight-icy-roads](http://www.ohiogo.com/gas%20&%20oil/2014/01/03/well-s-brine-water-can-fight-icy-roads)

In addressing the use of safety devices (78.72), we advocate that all phases of gas operations – not just those entitled control and disposal 78.55(b) use optimal protection to prevent blowouts. Safety devices should be consistent with best practices and be site-specific given the terrain and risks inherent in sensitive ecosystems [78.72 (i)]. Blowouts, such as those in Clearfield County (2010), the Tioga State Forest (2011), Bradford County (2011), and Wyoming County (2013),<sup>15</sup> must not be repeated.

In regard to general provisions for well construction and operation (78.73), we applaud inclusion of the monitoring of orphaned wells during stimulation activities [78.73 (c)]. We recommend that on-going prevention mechanisms be in place to prevent pollution and to monitor operations throughout gas production given the high and often fluctuating pressures of flow [78.73 (c)]. Because of the contamination risks, notification of any changes to an orphaned or abandoned well to the Department should be reinforced by on-site inspection prior and during the plugging of an altered well. Further, any excess gas encountered during drilling should not be flared but captured to prevent degradation of air quality and unnecessary contributions to climate change exacerbated by methane.<sup>16</sup>

Section 78.75 speaks to alternative methods and materials for casing, plugging or equipping a well. Such requests should be approved on a case-by-case basis, employ only best practices, and include language that hold the operator legally and financially accountable for damages in perpetuity.

Clarifications regarding notification and inclusions of cited sections and acts are most helpful to encourage compliance both in the gas storage section (78.87), general provisions (78.91)(78.101), annual monitoring (78.103), and revocation of inactive status (78.105).

Specificity in reporting well production is very significant and should be posted for public review (78.121). Strict enforcement of these provisions is required given their implications for all stakeholders and revenue.

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<sup>15</sup> See [http://triblive.com/x/pittsburghtrib/news/regional/s\\_684495.html - axzz2sPwPw9bJ](http://triblive.com/x/pittsburghtrib/news/regional/s_684495.html-axzz2sPwPw9bJ) and [http://articles.philly.com/2011-01-26/business/27049596\\_1\\_talisman-energy-blowout-marcellus-shale](http://articles.philly.com/2011-01-26/business/27049596_1_talisman-energy-blowout-marcellus-shale) and <http://online.wsj.com/news/articles/SB10001424052748704570704576275353686652670> and <http://thetimes-tribune.com/news/wyoming-county-well-malfunction-causes-spill-evacuation-1.1458575>

<sup>16</sup> See “green completion” in <http://stateimpact.npr.org/texas/2013/09/16/how-much-methane-is-leaking-from-gas-drilling-new-study-aims-to-answer/>

Although listing specific information to be included in a well-completion report and stimulation record is useful, we recommend the following:

- define “altering” a well [78.122 (a)];
- revert to the original language of “submit” a completion report not “arrange for the submission of” since this extends the timeline indefinitely. [78.122 (b)]
- include
  - “volume and/or mass” of each chemical additive [78.122(6)(ii)]
  - chemical formulas for each chemical intentionally added to the stimulation fluid [78.122(6)(iii)]
  - the mandatory addition of site-specific tracers with each stimulation record to establish liability in the event of unanticipated consequences.
  - test results of the specific chemical composition of all “base fluids” be they recycled, freshwater, or other water and their source(s) [78.122(6)(vii)] and
  - pressure readings measured 24 hours, 48 hours and 72 hours after completion (78.122(8)).

Test results of the base fluid and a list of all chemical constituents of the chemical additives used to hydraulically fracture a well must be submitted to the Department and available to the public without regard to “protections afforded by trade secrets and confidential proprietary information.” [78.122’

The final sections of the proposed regulations address Logs and Additional Data (78.123). We suggest the following:

- define recompletion of drilling to clarify if this includes restimulation or superfracking<sup>17</sup>  
[789.123 (a) and 789.123 (b)]
- change data to read “including” not “such as” representative drill cuttings . . . .
- eliminate the word “not” in the final sentence so the interpretation of data is required to be filed and add “including significant changes in radioactivity readings, chemical composition, pressure, etc.” [789.123 (c)]
- shorten the filing period to six months after the completion of the well – not “no more than 3 years!” An extension of the deadline for up to five years should be no more than one year from the date of well completion [789.123 (d)]

Further, all logs should be submitted in a standard format designed by the Department to promote enforcement and use for statistical purposes [78.123(e)]

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<sup>17</sup> See <http://www.bloomberg.com/news/2012-01-11/super-fracking-goes-deeper-to-pump-up-natural-gas-production.html>

To prevent taxpayers from paying the costs of natural gas development, adequate bonding requirements are essential (Subchapter G).<sup>18</sup> The following recommendations are provided: • Increase bond amounts well beyond the 2500 per well or 25,000 for a blanket permit

[78.303 (e) (1)] and [78.303 (e) (2)]. Adopt a scale consistent with Michigan that starts at \$10,000 per well and \$100,000 for a blanket permit.

Incremental increases should correlate with increasing depth.<sup>19</sup> Provisions should be made for review of additional bonding costs at set time intervals as based on updated, projected costs, the number and length of horizontal bores, superfracking, and other technological advances.

- Require letters of credit from operators that do not exceed the fair market value of all their assets. Enforce this by shutting down operations if cash collateral is not forthcoming within 30 calendar days [78.306 (b)].
- Eliminate and/or limit phased deposits of collateral to small, private operators that are not subsidiaries of large corporations [78.309 (a)]. The amounts specified are inadequate and need to reflect the projected costs of potential consequences.
- Eliminate phased deposits of collateral for individuals as amounts of \$500 per well are insignificant and serve to prompt reckless development [78.309 (b)].
- And protect taxpayers by limiting replacement of existing bonds so that transfers and accrued liability do not obfuscate real risks and actual costs [78.310 (a)']

Updating citations in sections dealing with gas storage well integrity testing [78.403] and maximum storage pressure [78.404] is useful. However, the final statement regarding policy (78.902) is problematic. The League understands that *policies cannot create a duty or obligation to conduct a minimum or maximum number of inspections per year or during a certain period of time*. However, we strongly urge you to join with us in advocating for additional funding to provide adequate, trained staff and resources to monitor, implement, and enforce these regulations given the rapidly increasing impact of natural gas development in our Commonwealth. Our public health and environment deserve more than a regulatory document as an investment in our future.

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<sup>18</sup> See footnote 2. The League position supports *preventing a burden on Pennsylvania taxpayers by establishing a sufficient fee structure on natural gas extraction for permits, bonds, and surcharges for the funds to plug abandoned and orphan oil and gas wells, that reflects projected costs and unanticipated consequences*.

<sup>19</sup> See [http://www.michigan.gov/deq/0,4561,7-135-3311\\_4111\\_4231-44518--,00.html](http://www.michigan.gov/deq/0,4561,7-135-3311_4111_4231-44518--,00.html)