



May 18, 2015

Pennsylvania Environmental Quality Board  
PO Box 8477  
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Dear Environmental Quality Board members:

Thank you for the opportunity to submit comments on the final draft regulations for oil and gas surface activities (amendments to 25 Pa. Code Chapter 78 and Chapter 78a, Subchapter C). We also appreciate the willingness of the Department of Environmental Protection (DEP) to extend the comment period and conduct public hearings on the final draft regulations.

Earthworks is a nonprofit organization dedicated to protecting communities and the environment from the impacts of mineral and energy development while seeking sustainable solutions. For more than 25 years, we've worked to advance policy reforms, safeguard land and public health, and improve corporate practices. Our Oil & Gas Accountability Project works with local communities, partner organizations, public agencies, and elected officials to advance these goals nationwide, including in Pennsylvania.

DEP has clearly strengthened important aspects of the regulations since the first draft was issued in early 2014. Such progress reflects the fact that the Department received more than 25,000 comments—many of which expressed grave concern over the continued negative environmental and health impacts of gas and oil development being experienced by communities across Pennsylvania.

Earthworks has signed on to the extensive technical comments on the proposed revisions to Chapter 78a submitted by Earthjustice on behalf of a number of environmental and citizens organizations. In the following pages, we submit additional comments focusing specifically on waste management, public resources, and orphaned and abandoned wells.

## **General comments**

**Division of Chapter 78 and Chapter 78a regulations.** Earthworks is concerned about the effect of having less comprehensive and stringent regulations for conventional than unconventional operators. We understand that DEP is required by law to issue two sets of regulations—but the agency's mandate to develop regulations that protect people and the environment must be upheld. Sometimes scale is the only difference between conventional and unconventional operations. Conventional wells also use water and chemicals, create toxic and potentially hazardous waste, and disturb land. Conventional operators also cause spills, accidents, and pollution.

DEP's budget and staff have not kept pace with the review, oversight, and enforcement demands placed on the agency as a result of the shale gas boom. In light of resource constraints, DEP appears to have shifted its inspections and regulatory enforcement to unconventional wells. DEP's 2013 Oil and Gas Annual Report focuses analysis of industry oversight on wells drilled as part of the Marcellus Shale gas boom.<sup>1</sup>

This trend is borne out by an analysis by Earthworks in 2014 of inspection and violations data for nearly 500 wells (from eFACTS, the Oil and Gas Compliance Database, and documents found in well files at regional offices); over 24% of the conventional wells reviewed had never been inspected, compared to less than 2% of unconventional wells.<sup>2</sup> Such lacking oversight could mean that environmental problems are going unchecked. Due to the inherent risks of *all* oil and gas development, DEP has a responsibility to at least ensure that regulations for *all* types of wells are strong and enforceable.

**Transparency and access to information.** DEP proposes to require oil and gas operators to file permit applications and required reports electronically. We strongly support and appreciate this change, which would greatly improve data collection, efficiency, documentation of oil and gas activities, and enforcement. However, we encourage DEP to ensure that all electronic filings and reports from operators are also available to the public on DEP's website on the same day they are deemed complete by DEP. Easy and timely access to information by the public is necessary to ensure agency transparency and operator accountability going forward.

## **Section comments**

### **§78.15 and §78a.15. Application requirements.**

We strongly support the inclusion of school property and playgrounds in the list of public resources (§78.15(1)(vi) and §78a.15(1)(vi)), which would require well permit applicants to submit additional information; establish limits of disturbance; and allow DEP to impose additional permit conditions. This change signals a recognition by DEP of the health and safety risks posed to children and others who spend time on school property. DEP should extend this limit of disturbance to locations where other equally vulnerable populations reside, including nursing homes, hospitals, day care centers, and communities at a disproportionate risk of health impacts (such as DEP's designated environmental justice areas).

In general, the closer to the source of pollution (e.g., a well or tank), the greater the potential for exposure to contaminants and the likelihood of impacts to health. However, even if DEP decides to require permit applicants to adopt protective measures (e.g., sound barriers or emissions controls), the distance restriction of 200 feet is too small to substantially reduce impacts.

To improve protection from pollution, noise, and light and safety from traffic, accidents, and explosions, §78.15(1)(vi) and §78a.15(1)(vi) should be amended to extend the limit of disturbance from school property to one mile and to include wells, waste storage facilities, access roads, tanks, and any other infrastructure and equipment used in oil and gas activities.

While there is no scientifically definitive distance at which air contaminants cause health impacts, nor an established distance beyond which they would never occur, recent studies suggest the potential for contamination at much longer distances than the requirements included in the draft regulations. A study by the City of Ft. Worth on air quality in gas fields found concentrations of formaldehyde above state regulatory standards 750 feet beyond the site's fence line.<sup>3</sup> Air modeling conducted in Pennsylvania showed nitrogen oxide above state regulatory standards up to one mile of the Barto Compressor Station in Lycoming County.<sup>4</sup>

A Colorado School of Public Health study of air emissions around gas well operations found that residents living less than a half mile away are at higher risk of respiratory, neurological, and other health impacts and have a higher lifetime risk for cancer, based on exposure to pollutants, than

those who live at farther distances.<sup>5</sup> Most recently, a study by researchers at Oregon State University and the University of Cincinnati found that residents living closest to active oil and gas wells had an exposure risk for polycyclic aromatic hydrocarbons (known to cause cancer and respiratory problems) higher than the United States Environmental Protection Agency's acceptable risk level, and that risk estimates decreased 30 percent at distances more than one mile away.<sup>6</sup>

Similarly, Earthworks' survey of health impacts in Pennsylvania found that as the distance from gas wells and facilities decreased, the percentage of respondents reporting specific health symptoms (such as throat irritation and headaches) increased.<sup>7</sup> In addition, recent research underscores the role that landscape, wind and weather conditions, and the stage of production play in determining the intensity of exposure and, in particular, how both episodic events (e.g., compressor station blowdowns) and repeated exposure can worsen health effects.<sup>8</sup>

We object to the limitations in §78.15(4)(g) and §78a.15(4)(g) that could hamper the actual implementation of public resource protections; these should be deleted. DEP should not have to consider the "optimal development" of oil and gas when deciding whether to impose permit conditions. This would in effect give resource development precedence over the protection of environment and health, the very purpose for which the regulation was developed.

In addition, DEP should not have to bear the burden of proof in demonstrating that the additional permit conditions are warranted. Given the agency's limited staff and resources, DEP may be less likely to impose permit conditions related specifically to public resources. This is particularly concerning in light of the 2012 Executive Order imposed by Governor Corbett that requires DEP to establish timeframes within which permit applications must be reviewed. Known as the Permit Decision Guarantee, the order aims to ensure that permits are processed "as expeditiously as possible" and makes "compliance with the review deadlines a factor in any job performance evaluations."<sup>9</sup> Under the policy, a basic drill and operate well permit must be issued in no more than 32 days.

#### **§78.52a and §78a.52a. Area of review.**

We strongly support the proposed regulation that operators would be required to identify the location of old wells before drilling new ones (§78.52a(a) and §78a.52a(a)). As drilling spreads and intensifies, so does the chance that accidents, blowouts, and the migration of methane and fluids into water wells will result from the intersection of new wells with old ones.

It is not acceptable for today's operators to drill new wells that could disturb or alter old wells without taking responsibility for subsequent environmental problems that result. Because the state lacks funding to address the large number of old wells, drillers should be responsible for preventing water and air pollution when accidents occur as a result of their own activities.

These sections should be amended to specify that operators are required to identify orphaned and abandoned wells through onsite inspection and plug and seal them according to established safety standards before site construction and well permits are issued. This sequence is critical to ensuring that the location of new wells can be changed if needed to avoid intersection with old wells. Pennsylvania law provides DEP with the authority to deny a permit if issuance of the permit would result in a violation of applicable law, which the failure to plug and abandon wells would be (58 Pa. C.S. §3220).

### **§78.56. Temporary storage.**

We strongly support the new proposed prohibition on production pits for unconventional drillers in §78a.56, including the requirement that all pits be closed within six months of adoption of the regulations. In order to achieve regulatory consistency and effectiveness, this same standard and closure period should be included in §78.56. (Prohibiting all production pits for all forms of waste containment would also provide clarity in §78.57, discussed below.)

We object to the continued allowance of production pits for the temporary storage of liquid and solid waste at conventional well sites. The “best management practice” of closed-loop systems reflects the risk of both air emissions and spills from pits. Given the strong potential for such environmental impacts occurring wherever waste is created and managed, conventional operators—who use modern technologies to drill, fracture, and develop wells—should also be required to adopt current best practices.

A review of DEP inspection reports show that between January 2010 and August 2013, notices of violations were issued for the improper management and disposal of waste in pits for at least 48 well sites statewide, including conventional ones.<sup>10</sup> The violations were issued for problems such as structural instability; improper encapsulation; liner holes and tears; leakage of fluid into springs, ponds, and streams; seepage of contaminated fluids to the surface; and erosion and runoff.

We object to the continued allowance of any open-top structures for temporary waste storage (§78.56(5) and §78a.56(5)). The allowance of open-top storage structures should be removed from these sections due to the risks of spills, leaks, and overflow of waste into surface and groundwater resources and soil, as well as the release of toxic vapors into the air. Operators should be required to immediately convert their operations to the use of closed tanks; any other storage structures that DEP eventually approves should also provide complete containment of wastes.

### **§78.57 and §78a.57. Control, storage, and disposal of production fluids.**

We strongly support the proposed prohibition on the use of pits and open-top structures for the control, storage, and disposal of production fluids. The Marcellus Shale Coalition urges operators to consider “[u]sing ‘closed loop’ fluids management systems (i.e., eliminating the need for lined earthen pits at the drilling site) ....”<sup>11</sup> The Center for Sustainable Shale Development states that operators “shall contain drilling fluid and flowback water in a closed loop system at the well pad.”<sup>12</sup>

We also note that §78.57 contradicts §78.56 on temporary waste storage. §78.57(b) states that operators may not use pits for storage of brine and other fluids produced during operations, but according to §78.56(a), conventional operators are allowed to temporarily store brine and stimulation, treatment, and servicing fluids in pits. This lack of clarity in effect creates a loophole that operators could exploit in order to store brine and fluids in pits by claiming they are for “temporary storage,” rather than for the “storage” that is implied—but left undefined—in §78.57. This loophole would also make it virtually impossible for DEP to enforce §78.57. As indicated above, we strongly recommend regulatory consistency by prohibiting all production pits for all forms of waste containment at both conventional and unconventional well sites.

We oppose the removal from the final drafts of both §78.57 and §78a.57 of the prohibition on the underground burial of waste storage tanks. As with pits dug into the ground, buried tanks pose risks to groundwater and soil through leaks, overflow, and failure of structural integrity. Detecting and repairing such problems are more difficult when tanks are buried below the surface.

**§78.57a and §78a.57a. Centralized tank storage.**

We support the inclusion of new design, construction, and maintenance standards for tanks §78.57a(h)(i)(1) and §78a.57a(h)(i)(1). However, the standards should be specified in the regulations, or DEP review of operators' plans for tank storage at well sites should be added as a well permit condition. Simply stating that tanks should be "structurally sound in accordance with sound engineering practices adhering to Nationally recognized industry standards and the manufacturer's specifications" does not constitute regulation, as there is no corresponding basis for determining violations or enforcing regulations.

We strongly support the proposed prohibition on construction of any portion of a centralized tank storage site within 300 yards of buildings owned by school districts (§78.57a(f)(8) and §78a.57a f)(8). Tanks contain contaminated and potentially toxic substances (e.g., flowback and fracturing fluids) and can cause leaks and spills. In addition, if many operators across a wide geographic area develop centralized tank storage sites, roads and traffic would increase during both construction and daily operations—in turn raising the risk of air pollution, accidents, and spills.

These sections should be amended to extend the setback distance to one mile (5,280 feet), in light of the same scientific evidence of impacts discussed above with regard to application requirements and public resources. In addition, DEP should extend this construction setback to locations where other vulnerable populations reside, including nursing homes, hospitals, day care centers, and communities at a disproportionate risk of health impacts (such as DEP's designated environmental justice areas).

We strongly support the ability of DEP to deny permits to operators that have failed to comply with Pennsylvania and federal laws related to environmental protection and public health and safety (§78.57a(b) and §78a.57a(b)). Earthworks has long encouraged DEP to take this critical approach to regulatory enforcement. In a comprehensive 2012 report on oil and gas enforcement, we found that in Pennsylvania (as well as other states), many operators repeatedly violate the same rule at different well sites, from one year to the next.<sup>13</sup>

It is not clear why the proposed provision on non-compliance is limited to centralized tank storage facilities, rather than all waste storage equipment and facilities. A record of non-compliance pertaining to waste management—particularly if the violation resulted in pollution or harmed public resources—should always be a legitimate consideration in the permitting of wells. We encourage DEP to extend this provision to other aspects of oil and gas operations, including when violations occur related to waste control, storage, and disposal.

By limiting the operations of "bad actors" with a track record of violations, regulators can help prevent problems before they occur. Withholding new permits can also encourage regulatory compliance by signaling that violations will have real consequences on the ability to operate and generate revenue.

DEP has the authority to consider regulatory compliance history when making decisions on permitting. This is mirrored in other states as well. For example, New Mexico's permitting guidelines indicate that when operators have a certain number of wells out of regulatory compliance, they are deemed out of compliance with the state Administrative Code.<sup>14</sup>

We recognize that centralized tank storage facilities would require a special permit, while tanks and other equipment located at the well site are part of the general well drilling permit. If this is the

rationale for only applying this enforcement provision to centralized tank storage, at minimum the same provision should be added to all sections of Chapter 78 and Chapter 78a pertaining to specific permitting of centralized waste impoundments, freshwater impoundments, and pits (e.g., for erosion and sedimentation control and siting).

#### **§78.58 and §78a.58. Onsite Processing.**

We support the inclusion of centralized tank storage to the list of facilities where waste processing can occur. Given the toxic and volatile nature of many oil and gas wastes, it is critical that they be processed in closed containment systems.

We object to the addition of “mine influenced water” to the list of fluids that operators may seek approval to use (§78.58(a) and §78a.58(a)). This section states that all such fluids must be “intended to be beneficially used to develop, drill, or stimulate a well.” However, DEP has not yet issued a Beneficial Use Determination (BUD) for the use of mine-influenced water for oil and gas development purposes. DEP has long indicated its intention to allow drillers to use mine-influenced water, but the inclusion of this provision in Chapter 78 and 78a potentially constitutes a circumvention of state law.

DEP has not provided a scientific basis to demonstrate that the mine-influenced water is similar or analogous to the fluid it is intended to replace (e.g., freshwater mixed with fracturing chemicals) and that the new product will not harm the environment or human health—both of which are requirements under the state’s BUD program. In fact, the definition of “mine influenced water” in the proposed regulations emphasizes that it is a substance “that pollutes, or may create a threat of pollution to, waters of the Commonwealth.”

#### **§78.59b and §78a.59b. Freshwater impoundments.**

§78.59b and §78a.59b should be amended to stipulate that freshwater impoundments should be constructed only for the storage of freshwater. Earthworks and many other organizations and residents have strongly recommended that Pennsylvania’s oil and gas regulations include a clear definition of “freshwater,” yet the final draft regulations continue to omit it. Any other substances could potentially volatilize harmful chemicals into the air, and in the case of impoundment overflow or leaks, could contaminate soil and water.

Given the lack of review on the characteristics and potential environmental risks of using mine influenced water in oil and gas operations, we object to the ability of operators to store this substance in freshwater impoundments. These sections stipulate that operators would provide a mine influenced water storage plan to DEP and test the substance. At minimum, these sections should be amended to include concentration thresholds for a set of chemical parameters that mine influenced water must meet in order to qualify for storage. In addition, operators should be required to provide laboratory results to DEP (i.e., not simply make them available upon request).

#### **§78.59c and 78a.59c. Centralized impoundments.**

We strongly support the proposal to phase out centralized waste impoundments as currently constructed and permitted. For years, DEP’s permitting and regulation of centralized impoundments has been less than clear, with parts of both Chapter 105 and the Solid Waste Management Act being used. Earthworks and others have documented how oil and gas operators can change the intended use of impoundments over time, creating further regulatory uncertainty

and traffic and environmental problems for communities.<sup>15</sup> After years of resident complaints, for example, in 2014, DEP issued a record \$4.15 million fine to Range Resources for several violations of five state laws, following investigations that confirmed soil and groundwater contamination at eight centralized waste impoundments in Washington County.<sup>16</sup>

§78.59c and §78a.59c should be amended to require operators to submit a closure plan within 60 days, instead of six months. If operators have been maintaining proper documentation on the construction, maintenance, and use of their impoundments, they will not need six months to develop a closure plan. In addition, centralized impoundments should be fully closed and remediated within one year. Allowing a closure period of three years could prolong improper use and maintenance—and in turn environmental and health risks—of impoundments that operators eventually plan to close.

We object to the allowance of the continued construction and use of centralized waste impoundments. §78.59c(a) and 78a.59c(a) should be amended to remove the option of permitting and re-permitting impoundments under Chapter 289 on residual waste. If DEP retains this option, at minimum the regulations should state that oil and gas operators will have to comply with requirements for Class I residual waste impoundments under Chapter 289.

Earthworks recently documented gaps in the characterization and testing of waste disposed of at Pennsylvania landfills, as well as growing scientific and field evidence that oil and gas field waste contains toxic, hazardous, and radioactive substances.<sup>17</sup> Chapter 289 includes additional requirements for Class I residual waste impoundments that are necessary to apply to oil and gas waste management (e.g., pertaining to liners, leachate testing, and waste classification). In addition, oil and gas wastes would meet the definition of wastes disposed at Class I impoundments, i.e., those with “the greatest degree of potential for adverse effects on groundwater and the greatest potential impact on public health, safety and the environment.”<sup>18</sup>

### **§78.61 and §78a.61. Disposal of drill cuttings.**

We object to the allowance of drill cuttings disposal at the well site in pits and through land application. This regulation stipulates that only drill cuttings that aren’t contaminated by any fluids other than water or gases can be disposed of onsite. However, DEP has no mechanisms in place to ensure that operators make this determination prior to disposal onsite (e.g., through chemical testing). Nor does the regulation require operators to complete and file waste characterization forms, as they must do when disposing of waste offsite at landfills and treatment facilities.

The draft regulation has been changed since 2014 to specify that onsite disposal is only allowed for cuttings from above the surface casing seat. Again, DEP has no mechanisms in place to require operators to demonstrate that the cuttings meet this criterion.

Regardless of the depth of the formation from which drill cuttings are removed, it is likely that they are contaminated with chemicals used in the drilling process (e.g., drill bit lubricants or friction reducers). The Argonne National Laboratory has noted that extensive treatment and washing of drill cuttings is necessary to adequately remove hydrocarbons, salinity, moisture, and other contaminants.<sup>19</sup>

The lack of waste characterization requirements for onsite disposal is particularly concerning with regard to the potential radioactivity of drill cuttings. It is notable that a recent report on TENORM in drilling wastes by DEP stated, “Because landfills accept natural gas industry wastes such as drill

cuttings and treatment sludge that may contain TENORM [Technologically Enhanced Naturally Occurring Radioactive Material], there is a potential for leachate from those facilities to also contain TENORM.” In a review of data from two landfills in West Virginia that take large volumes of drill cuttings, Downstream Strategies found that leachate frequently contained concentrations of Ra-226 and Ra-228 that exceeded the federal Maximum Contaminant Level (MCL).<sup>20</sup>

Yet despite the clear environmental and health risks that drill cuttings can pose, the proposed regulation would allow operators to leave waste behind with virtually no oversight. §78.61 and §78a.61 should be amended to require full chemical and radiological characterization of drill cuttings at the well site, their containment in closed-loop systems, and their removal from the well site for proper disposal at an approved facility capable of handling the quantity and type of waste generated.

We appreciate the inclusion of landowner notification of the burial and land application of drill cuttings and electronic filing with DEP, which will improve documentation of operator practices and the locations where disposal has occurred. However, §78.62 and §78a.62 should be amended to allow landowners to reject the onsite disposal of drill cuttings before it occurs and to establish a “zone of presumption” of operator liability should water and soil contamination result, similar to what is required under Act 13 for water supplies contaminated by drilling.<sup>21</sup>

**§78.62 and §78a.62. Disposal of residual waste—pits; §78.63 and §78a.63. Disposal of residual waste—land application.**

We object to the allowance of residual waste disposal at the well site in pits and through land application. These sections include contaminated drill cuttings in the definition of residual waste that could be disposed of onsite. The environmental and health risks posed by drill cuttings (discussed above regard to §78.61 and §78a.61) are even more significant if the waste is known to contain drilling fluids, oil, brines, and other contaminants. In light of the potential environmental risks of disposing of waste onsite and DEP’s lack of ability to properly oversee and enforce the practice, §78.62 and §78a.62; §78.63 and §78a.63 should be amended to prohibit disposal of waste onsite through pit burial and land application.

These sections should be amended to require full chemical and radiological characterization of residual waste at the well site, its containment in closed-loop systems, and its removal from the well site for proper disposal at an approved facility capable of handling the quantity and type of waste generated.

While these sections include guidelines on pit burial, reviews of well files conducted by Earthworks and others have found no evidence that DEP inspectors ensure that they are followed, such as by being present during the process (e.g., to ensure that liners don’t tear and waste isn’t placed closer to streams or water wells than regulations allow).<sup>22</sup> Nor have we seen any evidence in DEP files and other documents that operators actually perform chemical analyses of waste prior to burial, despite regulatory limits on the chemical content of the leachate coming from pits.

In addition, §78a.62 contradicts the proposed prohibition on pits for temporary waste storage at unconventional well sites (78a.56). It makes no sense to prohibit waste storage in pits at well sites, (a regulation that we strongly support), but at the same time allow waste disposal via the burial of pits. This in effect creates a loophole that operators could exploit in order to construct and use production pits, claiming that they are for the disposal/burial of residual waste, rather than for



“temporary storage.” This loophole would also make it virtually impossible for DEP to enforce §78a.62. As stated above, *we strongly recommend regulatory consistency by prohibiting all production pits for all forms of waste containment and disposal.*

We appreciate the inclusion in the final draft regulations of landowner notification of onsite residual waste disposal and electronic filing with DEP. Should DEP continue to allow onsite disposal of residual waste, this step will enable, for the first time, documentation of the number and location of buried waste pits and land application sites. However, §78.62 and §78a.62 should be amended to allow landowners to reject the burial and land application of waste before it occurs, and to establish a “zone of presumption” of operator liability should water and soil contamination result, similar to what is required under Act 13 for water supplies contaminated by drilling.<sup>23</sup>

### **§78.63a and §78a.63a. Alternative waste management.**

We object to the blanket allowance of alternative waste management practices. DEP continues to support these regulations in order to encourage technical innovations in waste management and to allow operators flexibility going forward. We acknowledge the need for such progress. We also acknowledge the positive step of an electronic filing requirement, which will improve documentation of alternative waste management practices.

However, as currently written, §78.63a and §78a.63a are too general and vague to be enforceable, let alone to provide any kind of environmental protection through regulation. DEP has not proposed any improvements to these sections, which have been in place for many years. At minimum, specific best waste management practices and technologies should be detailed in these sections (or elsewhere in Chapter 78 and Chapter 78a). These sections should also specify the documentation that operators must provide to DEP to demonstrate “equivalent or superior protection” to established regulations.

Earthworks has reviewed more than 40 Alternative Waste Management approvals (known as OG71 waivers) contained in hard copy files at regional DEP offices; in nearly all of them, there was no evidence to support the assertion that the measures being proposed were environmentally protective, nor that they would provide “equivalent or superior protection” to established regulations.<sup>24</sup> In response to a Right-to-Know Law request for any guidelines or policies to determine whether methods of drill cuttings disposal approved under the OG71 would be considered “equivalent or superior,” DEP wrote that, “the Department does not have the records that you request in its possession, custody, or control.”<sup>25</sup>

In addition, our research found that waste management waivers may allow operators to directly avoid regulations. For example, the OG71 specifically contains an option for operators to construct waste pits so that they can be located even closer to groundwater than the 20 inches minimum required in the Pa. Code.<sup>26</sup> In addition, in the past operators have used liners that are 20 mils thick for temporary waste pits that are buried on-site, rather than the more robust 30 mil liners required in various sections of Chapter 78 and Chapter 78a pertaining to pits.

### **§78.69 and definitions. Water management plans.**

We object to the deletion of references and requirements for water management plans (WMPs). The omission of WMP requirements appears to contradict requirements in §78.122(6)(vii), which stipulates that conventional operators need to provide information on sources and volumes of water used “under an approved water management plan” when filing a well record and completion

report.

Conventional operators should be required to submit WMPs based on the same set of standards (e.g., implementation, recordkeeping, reuse, and suspension) as those in place for unconventional operators. Even if the volume of water used for each conventional well is less, water management plans are key to documenting the water required for site construction and restoration, drilling, hydraulic fracturing, and other purposes. WMPs can also ensure that DEP knows where and when water resources are being used, as well as providing enforcement authority should negative environmental impacts or unauthorized withdrawals occur.

It is also important that conventional drillers heed restrictions established by the Susquehanna River Basin Commission, for example the suspension of withdrawals when drought conditions exist—something that the provision in §78.69 currently proposed for deletion would require.

### **§78.70. Road-spreading of brine for dust control and road stabilization.**

We object to the continued allowance of road-spreading of brine. We support the decision to not allow brine from unconventional wells to be used as a road stabilizer, de-icer, and dust suppressant. However, to prevent potential harm to water, vegetation, and wildlife and to ensure regulatory consistency and enforceability, the same prohibition should be extended to brine from conventional wells.

Brine contains chemicals, hydrocarbons, and salts regardless of the type of well it comes from. DEP has set limits on contaminant levels in the brine, but has never provided scientific evidence that road-spreading is environmentally safe, especially over large areas for prolonged periods of time. Until DEP can demonstrate that brine-spreading treatments in use meet federal and state drinking water standards, it cannot be considered safe.<sup>27</sup>

Nor has DEP demonstrated that brine from conventional wells is similar or analogous to the fluid it is intended to replace (e.g., other types of de-icers or dust suppressants) and that the new product will not harm the environment or human health—both of which are requirements under the state's Beneficial Use Determination (BUD) program. In fact, DEP has yet to legally approve of road-spreading as a beneficial use. In 2011, DEP issued a notice for public comment on a beneficial use general permit (known as WMGR064) to allow gas well brines to be used both for dust suppression and de-icing; however, following challenges to the permit, DEP withdrew it. Because of this, inclusion of road-spreading of brine in Chapter 78 may be an illegal circumvention of the state's permitting and rulemaking procedures for residual waste management.<sup>28</sup>

The inclusion of sampling requirements (78.70(5)(n)) is a regulatory improvement, but remains too vague to be enforceable. Should DEP decide to continue to allow road-spreading of brine, at minimum this section should be amended to define "representative sample" (e.g., volume of the sample and that it must represent brine from each well); and to include radionuclides in the list of required testing parameters in §78.70a(e).

In closing, Earthworks encourages DEP to swiftly review all public comments and adopt strong Chapter 78 and Chapter 78a regulations within the established timeframe (i.e., by early 2016). Doing so would help prevent further environmental degradation and additional community and health impacts related to widespread oil and gas development. The adoption of updated regulations

would also enable EQB and DEP to address the need for stronger safeguards from air emissions from oil and gas activities, in particular the release of methane and volatile organic compounds—which are increasingly evident and of growing concern for communities across Pennsylvania.

Thank you for your time and attention. Please feel free to contact me with any questions or if you need additional information.

Sincerely,



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<sup>1</sup> Pennsylvania DEP Secretary Christopher Abruzzo and Deputy Secretary Scott Perry, "2013 Oil and Gas Annual Report."

<sup>2</sup> Nadia Steinzor with Lisa Sumi, Earthworks. *Blackout in the Gas Patch: How Pennsylvania Residents are Left in the Dark on Health and Enforcement*. 2014. <http://blackout.earthworksaction.org>

<sup>3</sup> Eastern Research Group, Inc. and Sage Environmental Consulting, L.P., 2011. *City of Fort Worth Natural Gas Air Quality Study, Final Report*.  
[http://fortworthtexas.gov/uploadedFiles/Gas\\_Wells/AirQualityStudy\\_final.pdf](http://fortworthtexas.gov/uploadedFiles/Gas_Wells/AirQualityStudy_final.pdf).

<sup>4</sup> AMI Environmental for the Clean Air Council, 2013. *AERMOD Modeling of NO2 Impacts of the Barto Compressor Station*.  
[www.pennfuture.org/UserFiles/File/MineDrill/Marcellus/CAC\\_EmissionsNO2\\_CompressorBarto\\_20130124.pdf](http://www.pennfuture.org/UserFiles/File/MineDrill/Marcellus/CAC_EmissionsNO2_CompressorBarto_20130124.pdf).

<sup>5</sup> Lisa M. McKenzie, Roxana Z. Witter, Lee S. Newman and John L. Adgate, Human health risk assessment of air emissions from development of unconventional natural gas resources. *Science of the Total Environment* March 21, 2012. The authors also noted that results are uncertain since "the actual distance at which residents may experience greater exposures from air emissions may be less than or greater than a 1/2 mile, depending on dispersion and local topography and meteorology."

<sup>6</sup> L. Blair Paulik, Carey E. Donald, Brian W. Smith, Lane G. Tidwell, Kevin A. Hobbie, Laurel Kincl, Erin N. Haynes, Kim A. Anderson. "Impact of Natural Gas Extraction on PAH Levels in Ambient Air." *Environmental Science & Technology*, 2015.

<sup>7</sup> Nadia Steinzor, Wilma Subra, and Lisa Sumi, "Investigating Links Between Shale Gas Development and Health Impacts through a Community Survey Project in Pennsylvania." *NEW SOLUTIONS*, Vol. 23(1), 2013. .

<sup>8</sup> David Brown, Beth Weinberger, Celia Lewis, and Heather Bonaparte. "Understanding exposure from natural gas drilling puts current air standards to the test." *Reviews on Environmental Health*, March 2014.

<sup>9</sup> Office of the Governor, Executive Order 2012-11, "Permit Decision Guarantee for the Department of Environmental Protection." Pennsylvania Office of Administration, records and directives.

<sup>10</sup> This RTKL request was filed by PennFuture, which shared the resulting documents with Earthworks.

<sup>11</sup> Marcellus Shale Coalition. *Recommended Practices: Drilling and Completion*. 2013.

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- <sup>12</sup> Center for Sustainable Shale Development. Performance Standards and Regulatory Standards across the Appalachian Basin. Section on water standards. 2014.
- <sup>13</sup> Lisa Sumi for Earthworks. *Breaking all the Rules: the Crisis in Oil & Gas Regulatory Enforcement*. 2012. <http://enforcement.earthworksaction.org>
- <sup>14</sup> New Mexico State Administrative Code. Section 19.15.5.9.
- <sup>15</sup> Nadia Steinzor with Lisa Sumi, Earthworks. *Blackout in the Gas Patch: How Pennsylvania Residents are Left in the Dark on Health and Enforcement*. 2014. <http://blackout.earthworksaction.org>
- <sup>16</sup> Commonwealth of Pennsylvania, Department of Environmental Protection and Range Resources-Appalachia. Consent Order and Agreement. September 17, 2014.
- <sup>17</sup> Nadia Steinzor and Bruce Baizel for Earthworks. *Wasting Away: Four states' failure to manage gas and oil field waste from the Marcellus and Utica Shale*. 2015.
- <sup>18</sup> Pennsylvania Code, §289.1, Scope.
- <sup>19</sup> Argonne National Laboratory, Drilling Waste Management Information System. "Beneficial reuse of drilling wastes." Fact Sheet, <http://web.ead.anl.gov/dwm/techdesc/reuse/>
- <sup>20</sup> M. Glass and K. Hatcher. Comments on Proposed Changes to the West Virginia Solid Waste Management Rule, 33CSR1. Downstream Strategies, 2014.
- <sup>21</sup> Pennsylvania law is unique in establishing a protective "zone of presumption," by which operators of unconventional (i.e., shale) wells are responsible for pollution of a water supply if it is up to 2,500 feet away and the pollution occurred within 12 months of completion, drilling, stimulation, or alteration of the well. This same distance and timeframe could be applied to operators with regard to onsite waste disposal. This would also have the beneficial effect of encouraging operators to conduct groundwater and soil tests prior to waste disposal. See DEP's "Act 13 Frequently Asked Questions," [www.portal.state.pa.us/portal/server.pt/community/act\\_13/20789/act\\_13\\_faq/1127392](http://www.portal.state.pa.us/portal/server.pt/community/act_13/20789/act_13_faq/1127392).
- <sup>22</sup> Nadia Steinzor with Lisa Sumi, Earthworks. *Blackout in the Gas Patch: How Pennsylvania Residents are Left in the Dark on Health and Enforcement*. 2014. <http://blackout.earthworksaction.org>
- <sup>23</sup> Pennsylvania law is unique in establishing a protective "zone of presumption," by which operators of unconventional (i.e., shale) wells are responsible for pollution of a water supply if it is up to 2,500 feet away and the pollution occurred within 12 months of completion, drilling, stimulation, or alteration of the well. This same distance and timeframe could be applied to operators with regard to onsite waste disposal. This would also have the beneficial effect of encouraging operators to conduct groundwater and soil tests prior to waste disposal. See DEP's "Act 13 Frequently Asked Questions," [www.portal.state.pa.us/portal/server.pt/community/act\\_13/20789/act\\_13\\_faq/1127392](http://www.portal.state.pa.us/portal/server.pt/community/act_13/20789/act_13_faq/1127392).
- <sup>24</sup> Nadia Steinzor with Lisa Sumi, Earthworks. *Blackout in the Gas Patch: How Pennsylvania Residents are Left in the Dark on Health and Enforcement*. 2014. <http://blackout.earthworksaction.org>
- <sup>25</sup> This RTKL request was filed by PennFuture, which shared the resulting documents with Earthworks.
- <sup>26</sup> Per Pennsylvania Code §78.56(4)(iii). Since a seasonal high groundwater table indicates hydrologic connectivity with water bodies such as wetlands and streams, even the regulated distance is inexcusably short in a state with many shallow water resources. It is notable that other states require far greater separation, such as 25 feet in New Mexico (see [www.nmcpr.state.nm.us/nmac/title19/T19C015.htm](http://www.nmcpr.state.nm.us/nmac/title19/T19C015.htm)), 5 feet in Louisiana (see [http://dnr.louisiana.gov/assets/OC/43XIX\\_June2010.pdf#page=30](http://dnr.louisiana.gov/assets/OC/43XIX_June2010.pdf#page=30)), and 4 feet in Michigan (see [www.michigan.gov/documents/deq/ogs-oilandgas-regs\\_263032\\_7.pdf](http://www.michigan.gov/documents/deq/ogs-oilandgas-regs_263032_7.pdf)).
- <sup>27</sup> See comments on the proposed revisions to Title 25, Chapter 78 of the Pennsylvania Code by Earthjustice et al. <http://bit.ly/1BT5XAB>
- <sup>28</sup> See comments on the proposed revisions to Title 25, Chapter 78 of the Pennsylvania Code by PennFuture. [http://www.pennfuture.org/UserFiles/File/Legal/Drill\\_LetterComment\\_EQB\\_20140314\\_OilGasChap78\\_LawStaff.pdf](http://www.pennfuture.org/UserFiles/File/Legal/Drill_LetterComment_EQB_20140314_OilGasChap78_LawStaff.pdf)