

Besseney & Van Tuyn, L.L.C.  
310 K Street, Suite 200, Anchorage, Alaska 99501  
Phone: (907) 278-2000, Fax: (907) 278-2004, Web: www.bvt-law.com

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**Via E-Mail to:**

Cathy Foerster  
AOGCC Commissioner  
[cathy.foerster@alaska.gov](mailto:cathy.foerster@alaska.gov)

John Norman  
AOGCC Commissioner  
[john.norman@alaska.gov](mailto:john.norman@alaska.gov)

Dan Seamount  
AOGCC Commissioner  
[dan.seamount@alaska.gov](mailto:dan.seamount@alaska.gov)

Jody Colombie  
Special Assistant to the Commission  
[jody.colombie@alaska.gov](mailto:jody.colombie@alaska.gov)

**Re: Supplemental Comments on Proposed Changes to AOGCC Regulations  
Governing Hydraulic Fracturing Activities in Alaska, 20 AAC Ch. 25**

Dear Commissioners and Ms. Colombie:

On behalf of our client, Denali Citizens Council (DCC), we are submitting these comments on the proposed changes and additions to the regulations of the Alaska Oil and Gas Conservation Commission (AOGCC), 20 AAC Ch. 25, which govern hydraulic fracturing activities in Alaska. DCC is a signatory to the public comments prepared by The Wilderness Society (TWS) and other groups, and this letter is intended to serve as a supplement to those comments. We thank you for the opportunity to submit written comments as well as the opportunity to participate in the upcoming public hearing on April 4, 2013.

**I. INTRODUCTION**

DCC is a local non-profit citizens group established in 1974 to provide Alaskan citizens with a voice in the management of Denali National Park and Preserve and surrounding communities. DCC's mission is to promote the natural integrity of Denali National Park and Preserve by supporting the ecological and wilderness values for which the park was established and by fostering responsible planning and sustainable development throughout the Denali region. DCC is concerned about potential environmental contamination from proposed hydraulic fracturing operations related to natural gas exploration and development in the Denali area, and it has been playing an important role

by informing and educating the public and by advocating for governmental action to address these concerns.<sup>1</sup>

The Alaska Oil and Gas Conservation Act authorizes AOGCC to regulate oil and gas drilling activities in Alaska.<sup>2</sup> In particular, the statute requires AOGCC to “regulate hydraulic fracturing in nonconventional gas wells to ensure protection of drinking water.”<sup>3</sup> AOGCC’s existing regulations require that “[b]efore drilling or re-drilling a well or re-entering an abandoned well, a person shall submit and obtain the commission’s approval of an application for a Permit to Drill.”<sup>4</sup> The Permit to Drill must include information on drilling hazards, surrounding property owners, full diagrams and descriptions of the work performed, and procedures to maintain well integrity and fluid containment.<sup>5</sup> Building on its existing regulations, AOGCC is now proposing to establish additional permit requirements, standards and procedures specifically designed to prevent and minimize the harmful impacts associated with hydraulic fracturing operations.<sup>6</sup>

We commend AOGCC for proposing regulations which support the important goals of regulating hydraulic fracturing in a safe and responsible manner, while providing communities with critical information regarding hydraulic fracturing operations. DCC urges AOGCC to adopt these regulations promptly and without any alterations that may weaken the proposed protections for human health and safety, public water resources, the ecological and wilderness values of Denali National Park and Preserve, and other environmental values. In addition, DCC urges AOGCC to strengthen its proposed regulations based on the recommendations described in these comments.

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<sup>1</sup> DCC Newsletter (Jan.-Feb. 2013), available at <http://www.denalicitizens.org/wp-content/uploads/2013/02/DCC-News-Jan-Feb-2013-web.pdf> (last visited April 1, 2013).

<sup>2</sup> AS 31.05.030.

<sup>3</sup> AS 31.05.030(j)(2)(A).

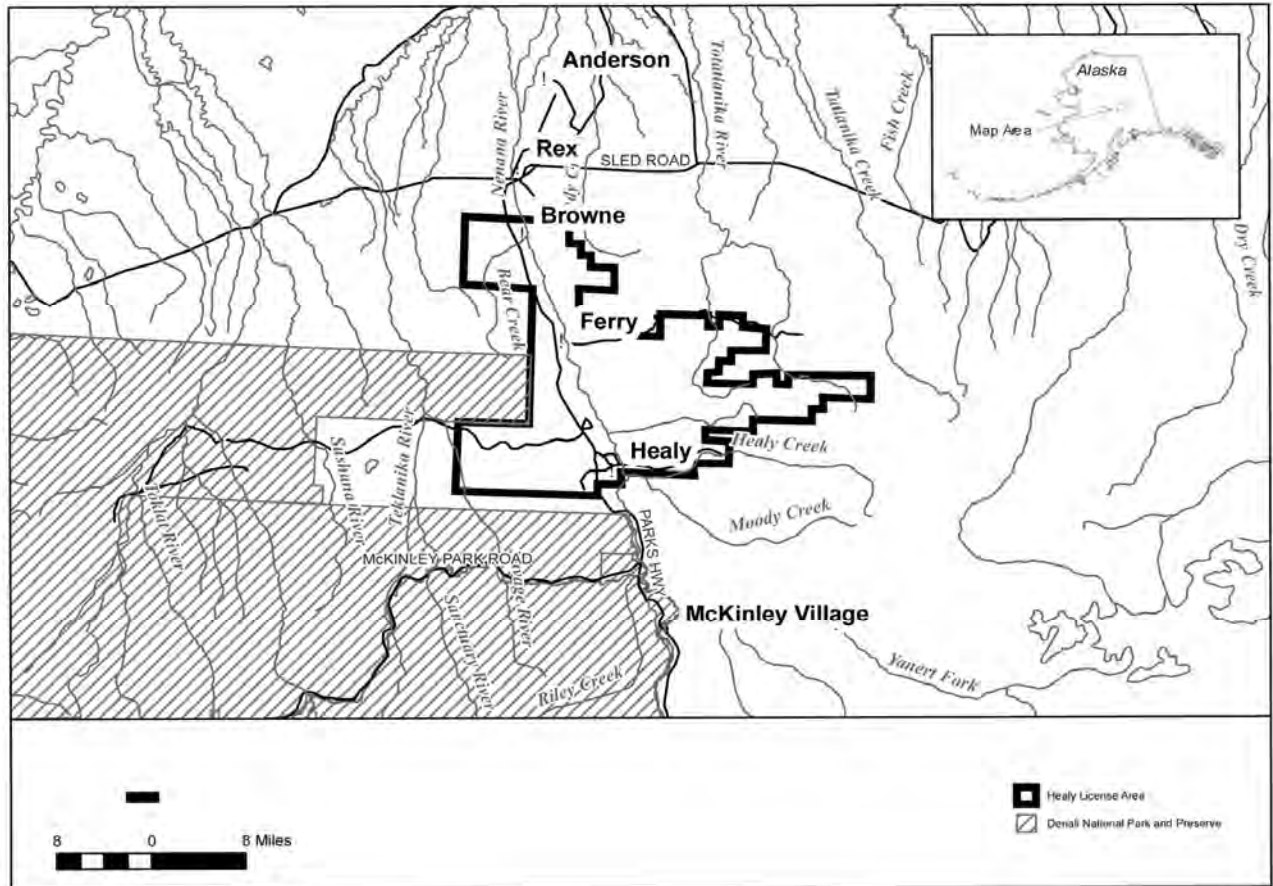
<sup>4</sup> 20 AAC 25.005(a).

<sup>5</sup> 20 AAC 25.005(c).

<sup>6</sup> 20 ACC 25.005(c)(13) (proposed regulation), “An application for a Permit to Drill must be accompanied by each of the following items . . . for a well proposed for hydraulic fracturing, the drilling program shall so indicate; a request for approval to perform hydraulic fracturing must be separately made by submitting Form 10-403 with the information specified at 20 AAC 25.280 and 25.283.”

## II. THREATS POSED BY HYDRAULIC FRACTURING TO DENALI NATIONAL PARK AND PRESERVE AND SURROUNDING COMMUNITIES

The Denali Citizens Council's concerns over hydraulic fracturing are rooted in the State's authorization of a natural gas exploration license on over 200,000 acres of public and private land in the Denali Borough, adjacent to Denali National Park and Preserve, overlapping the proposed Stampede State Recreation Area and overlying the communities of Healy, Ferry, and Panguingue Creek among others. The Best Interest Finding specifically included hydraulic fracturing as a tool to be utilized in the exploration and potential future development of gas in this area. However, unless approached very carefully, both the use of hydraulic fracturing and natural gas development generally may seriously damage existing communities and the wildlife and scenery that are important for the local economy.



Source: ADNR and BLM 2004.

The Denali region enjoys peaceful and rural residential areas, an abundance of wildlife and wilderness areas, a long-term sustainable tourism-based economy, immense public lands, and nearly pristine air and water. Denali National Park and Preserve attracts nearly

400,000 visitors from all over the world and brings in millions of dollars to the Denali Borough each year because of its magnificent natural beauty and unparalleled opportunities for wildlife viewing and backcountry exploration. The Denali region is home to grizzly bears, black bears, gray wolves, caribou, Dall sheep, and moose, and its waters provide habitat for salmon, trout, arctic grayling, and other fish species. The region is also home to many migratory birds, including the majestic tundra swan, as well as many birds of prey, such as the striking golden eagle.

Healthy and abundant ecosystems and recreational opportunities are found on state lands outside national park boundaries as well, and are the basis for a thriving local tourism economy along the park's northern and eastern boundaries. A key area located in this region is known as the Wolf Townships, surrounded on three sides by the national park. These townships provide abundant recreational opportunities for local and statewide citizens and a growing number of national and international visitors, and share physical and biological resources with the national park. The Alaska Department of Natural Resources, Division of Mining, Land and Water, recognized their importance by designating these lands for wildlife habitat and public recreation in the Tanana Basin Area Plan and the Draft Yukon Tanana Area Plan. In recognition of these values, the Denali Borough Assembly has repeatedly encouraged the State of Alaska to establish a State Recreation Area (SRA) in the Wolf Townships, and a bill to this effect has been introduced in the Alaska Legislature for the fourth time. In the area where gas exploration is authorized, the watershed of the Savage River is shared with the proposed SRA and the National Park.



**Photo 1:** Youth Fishing in Pond Within Healy Basin Near Milepost 261 (P. Homan, Sept. 2012)

Many local businesses are dependent upon tourism for their existence, and the Denali Borough is almost entirely reliant on accommodation taxes to fund government operations and the Borough schools. The area is home to many people who moved there for out-the-back-door access to undeveloped recreation lands, scenery, and wildlife. Local residents and businesses are entirely dependent upon individual wells for their water supply.

Local residents and business owners are concerned that new high-volume hydraulic fracturing operations in the area will degrade these world-class public lands, threaten

public health and safety, contaminate public water supplies, pollute the air, threaten wildlife populations and ecological systems, and reduce property values.

Although low-volume hydraulic fracturing methods have been used in Alaska for some time in connection with conventional oil and gas drilling operations, new technologies are bringing much more risky high-volume and high-pressure forms of hydraulic fracturing to Alaska. These unconventional fracturing operations have already caused extensive damage in many other regions of the United States. In the states where hydraulic fracturing operations have been most active—Arkansas, Colorado, New Mexico, New York, North Dakota, Ohio, Pennsylvania, Texas, Virginia, West Virginia, and Wyoming—dozens of communities have reported well water contamination, loss of water pressure, gas explosions, fires, noxious odors, and serious health symptoms in humans, livestock, and pets.<sup>7</sup>

Health Effects. Health effects resulting from hydraulic fracturing operations have included severe rashes with oozing blisters, torrential nosebleeds, nausea, severe headaches, neurological symptoms consistent with exposure to toxic substances, burning in the lungs and sinuses after showering, burning in the mouth immediately upon drinking contaminated water, and abnormal milk production and birth defects in goats.<sup>8</sup>

Water Contamination. In many instances, water testing has confirmed the presence of chemicals associated with hydraulic fracturing operations. In Pennsylvania, for instance, water testing at one farm showed arsenic at 2,600 times above acceptable levels, benzene at 44 times above applicable limits, naphthalene at 5 times the federal standard, and mercury and selenium at levels above regulatory limits.<sup>9</sup> In other instances, water testing has shown the presence of acrylonitrile, benzene, toluene, diesel fuel constituents, many different toxic



**Photo 2:** Sherry Vargson, Granville Summit, PA, Lighting Tap Water Contaminated by Hydraulic Fracturing (Climate Progress, Sept. 26, 2011).

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<sup>7</sup> See generally NRDC, Switchboard, *Incidents Where Hydraulic Fracturing Is a Suspected Cause of Drinking Water Contamination* (Dec. 19, 2011), available at [http://switchboard.nrdc.org/blogs/amall/incidents\\_where\\_hydraulic\\_frac.html](http://switchboard.nrdc.org/blogs/amall/incidents_where_hydraulic_frac.html) (last visited Mar. 29, 2013).

<sup>8</sup> See *id.*

<sup>9</sup> See *id.*

metals, and other substances associated with hydraulic fracturing operations.<sup>10</sup> Numerous households have also documented flammable methane emerging from their water taps.<sup>11</sup>

Radioactive Wastewater. The risk of contamination of surface waters and groundwater by the drilling fluids used in fracturing operations is compounded by the risks associated with the storage, handling, and disposal of the wastewater generated through fracturing operations.<sup>12</sup> Wastewater from hydraulic fracturing often contains high levels of radioactive materials, such as radium and barium, and other toxic materials which have been brought up thousands of feet from ancient subsurface formations to the surface through high-volume, high-pressure rock fracturing operations.<sup>13</sup> According to the New York Times, hydraulic fracturing wastewater with radioactivity at levels hundreds or even thousands of times higher than federal drinking water standards has been released in large quantities into the Monongahela River, Susquehanna River, Delaware River, Ohio River, and other water bodies, which together provide drinking water for millions of Americans.<sup>14</sup>

Seismic Hazards. The risks associated with drilling operations and wastewater disposal are further exacerbated by the fact that such operations are known to cause induced seismicity, microearthquakes, and larger earthquakes. Hydraulic fracturing operations, especially the deep injection of hydraulic fracturing wastewater, have been linked to earthquakes in Arkansas, Colorado, Ohio, West Virginia, Oklahoma, and Texas.<sup>15</sup> These earthquakes could be dangerous in their own right, and they also compound the difficulty

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<sup>10</sup> *See id.*

<sup>11</sup> *See* Climate Progress, *Photo Proof: Fracking Can Make Water Flammable* (Sept. 9, 2011), available at <http://thinkprogress.org/climate/2011/09/26/329245/photo-proof-fracking-can-make-water-flammable/?mobile=nc> (last visited Mar. 29, 2013).

<sup>12</sup> *See* New York Times, *Toxic Contamination from Natural Gas Wells* (Feb. 26, 2011), available at [http://www.nytimes.com/interactive/2011/02/27/us/natural-gas-map.html?\\_r=1&](http://www.nytimes.com/interactive/2011/02/27/us/natural-gas-map.html?_r=1&) (last visited Mar. 29, 2013).

<sup>13</sup> *See* Penn State News, *Analysis of Marcellus Flowback Finds High Levels of Ancient Brines* (Dec. 17, 2012) (summarizing study conducted by Penn State's Department of Geosciences), available at <http://news.psu.edu/story/143694/2012/12/17/analysis-marcellus-flowback-finds-high-levels-ancient-brines> (last visited Mar. 29, 2013).

<sup>14</sup> *See* New York Times, *Drilling Down: Regulation Lax As Gas Wells' Tainted Water Hits Rivers* (Feb. 26, 2011), available at <http://www.nytimes.com/2011/02/27/us/27gas.html> (last visited Mar. 29, 2013).

<sup>15</sup> E&E Publishing, LLC, *Earthquakes: States Deciding Not to Look at Seismic Risks of Drilling* (Mar. 25, 2013), available at <http://www.eenews.net/public/energywire/2013/03/25/1> (last visited Mar. 29, 2013). *See* Worldwatch Institute, *Addressing the Environmental Risks from Shale Gas Development* (July 2010), available at <http://efdsystems.org/Portals/25/Hydraulic%20Fracturing%20Paper%20-%20World%20Watch.pdf> (last visited Mar. 29, 2013); Columbia University, Earth Institute, Lamont-Doherty Earth Observatory, *Ohio Quakes Probably Triggered by Waste Disposal Well, Say Seismologists* (Jan. 6, 2012), available at <http://www.ldeo.columbia.edu/news-events/seismologists-link-ohio-earthquakes-waste-disposal-wells> (last visited Mar. 29, 2013).

of ensuring that the hazardous substances used in drilling fluids, as well as the radioactive and toxic materials found in hydraulic fracturing wastewater, do not escape into drinking water, rivers and streams, or the broader environment. Containment of hazardous materials during hydraulic fracturing operations and deep injection of wastewater will be an especially big challenge in the Denali region because the area has a high level of seismic activity and already experiences more than 600 earthquakes per year.<sup>16</sup>

**Sprawling Infrastructure.** The pattern of development associated with unconventional hydraulic fracturing is also a cause for grave concern for the Denali region because this form of oil and gas activity requires far more infrastructure and affects a much greater land area than conventional oil and gas operations. Hydraulic fracturing operations and the associated roads, well pads, and other infrastructure fragment the landscape, and this causes devastating effects on fish and wildlife habitat and ecosystems as well as tremendous aesthetic degradation and potential to harm human health and well-being.<sup>17</sup> If left unconstrained, the adverse impact of this type of sprawling development on the magnificent unspoiled lands and waters surrounding Denali National Park and Preserve and the tourism-based economy that depends on them would be very severe.



**Photo 3:** Typical Hydraulic Fracturing Development—4 Well Pads per Square Kilometer (EcoWatch, Jan. 2, 2013).

**Water Consumption.** Another important concern for Denali area residents and businesses is the enormous quantity of water consumed during hydraulic fracturing operations. In the United States, a single well typically requires 3 to 8 million gallons of water over its lifetime,<sup>18</sup> and hydraulic fracturing operations can involve the development of thousands

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<sup>16</sup> See U.S. Dept. Interior, National Park Service, *Geologic Activity*, available at <http://www.nps.gov/dena/naturescience/geologicactivity.htm> (last visited Mar. 29, 2013). This figure refers to earthquakes that are solely within park boundaries and that are Magnitude 1 or greater. It does not include smaller earthquakes or earthquakes occurring in the Denali region outside the national park boundaries.

<sup>17</sup> See EcoWatch, *Meet Anthony Ingraffea—From Industry Insider to Implacable Fracking Opponent* (Jan. 2, 2013), available at <http://ecowatch.com/2013/industry-insider-to-fracking-opponent/> (last visited Mar. 29, 2013).

<sup>18</sup> See ALL Consulting, LLC, *Water Resources and Use for Hydraulic Fracturing in the Marcellus Shale Region*, at 2 (May 14, 2010), available at [http://fracfocus.org/sites/default/files/publications/water\\_resources\\_and\\_use\\_for\\_hydraulic\\_fracturing\\_in\\_the\\_marcellus\\_shale\\_region.pdf](http://fracfocus.org/sites/default/files/publications/water_resources_and_use_for_hydraulic_fracturing_in_the_marcellus_shale_region.pdf) (last visited Mar. 29, 2013); PennState University, College of

of wells per year. In Pennsylvania, for instance, 16,000 wells were fractured in 2011 and 19,000 new wells were expected to be fractured in 2012.<sup>19</sup> Water resources in the Denali region are complex and hydrologically interconnected. Even if some of the water is recycled as part of the hydraulic fracturing process, the extraction of staggering quantities of water from Denali area wells and streams could adversely affect water supplies for residents and businesses as well as water resources used for recreation and aquatic life.

Air Pollution. Denali-area residents are also concerned about air pollution associated with hydraulic fracturing activities. Denali National Park and Preserve is among the 156 areas across the country granted special protection as mandatory Class I areas under the Clean Air Act in order to preserve pristine air quality and visibility in national parks and wilderness areas.<sup>20</sup> The U.S. Environmental Protection Agency recently approved a state implementation plan designed to address air pollution impacts associated with emissions from the Healy coal-fired power plant situated near the national park (Regional Haze SIP).<sup>21</sup> DCC is concerned that hydraulic fracturing activities could undermine the objectives of the Regional Haze SIP and degrade air quality in the Denali region's Class I airshed. One of the main concerns is fugitive methane emissions from the wells. Methane is a volatile organic compound, a precursor to ozone (smog), and a potent greenhouse gas. Studies have shown that methane escapes to the atmosphere 30% to 100% more from unconventional hydraulic fracturing operations than from conventional oil and gas production.<sup>22</sup> In addition, toxic pollutants have been detected in the air emissions from compressors and other equipment during fracturing operations.<sup>23</sup> Near a Texas hydraulic fracturing operation, for instance, benzene was present at levels 55 times higher than state standards, while xylene and carbon disulfide (neurotoxins), naphthalene (a blood poison), and pyridines (potential carcinogens) were all found in excess of legal limits, with some "as much as 384 times levels deemed safe."<sup>24</sup> People living near

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Agricultural Sciences, *Water Withdrawals for Development of Marcellus Shale Gas in Pennsylvania* (Nov. 10, 2010), available at <http://pubs.cas.psu.edu/FreePubs/pdfs/ua460.pdf> (last visited Mar. 29, 2013).

<sup>19</sup> See Marcellus Drilling News, *Record-Breaking 19K New Wells to Be Fracked in 2012*, available at <http://marcellusdrilling.com/2012/01/record-breaking-19k-new-wells-to-be-fracked-in-2012/> (last visited Mar. 29, 2013).

<sup>20</sup> See 44 FED. REG. 69122 (Nov. 30, 1979).

<sup>21</sup> See 78 FED. REG. 10546 (Feb. 14, 2013).

<sup>22</sup> See Climatic Change, *Methane and the Greenhouse Gas Footprint of Natural Gas from Shale Formations*, vol. 106, issue 4, pp. 679-690 (June 2011), available at <http://www.springerlink.com/content/e384226wr4160653/fulltext.pdf> (last visited Mar. 29, 2013).

<sup>23</sup> See Scientific American, *Natural Gas Cracked Out of Shale Deposits May Mean the U.S. Has a Stable Supply for a Century—But at What Cost to the Environment and Human Health* (Mar. 30, 2010), available at <http://www.scientificamerican.com/article.cfm?id=shale-gas-and-hydraulic-fracturing> (last visited Mar. 29, 2013).

<sup>24</sup> *Id.*



hydraulic fracturing sites often “complain of headaches, diarrhea, nosebleeds, dizziness, blackouts, muscle spasms, and other problems.”<sup>25</sup> Indeed, in 2012, researchers from the Colorado School of Public Health demonstrated that air pollution caused by hydraulic fracturing may contribute to “acute and chronic health problems” for people living near drilling sites.<sup>26</sup>

In light of the many human health and environmental threats associated with hydraulic fracturing operations, we urge the AOGCC to err on the side of caution in developing its new regulations. Moreover, we hope the AOGCC will keep in mind that, under the Alaska Constitution, public lands, waters, and fisheries are public trust resources “reserved to the people for common use,”<sup>27</sup> and the State of Alaska has a duty to manage these and other resources “for the maximum benefit of its people.”<sup>28</sup>

### **III. STRENGTHENING THE PERMITTING PROCESS**

DCC supports AOGCC’s proposal to include public notice and disclosure requirements in its new regulatory amendments. In the hydraulic fracturing context, public notice and disclosure serve critical functions. Transparency gives the AOGCC, other governmental agencies, technical experts, medical professionals, and the public an opportunity to provide input regarding the properties and toxicity of the chemicals under consideration, as well as the likelihood that the well construction, equipment, operations, and waste disposal techniques will be effective in preventing accidents, such as an well blowout, gas leak, explosion, fire, or chemical spill. Comprehensive public notice and disclosure, as well as adequate development and disclosure of baseline information concerning water quality and other subjects, are especially important in the Denali region because the communities in the area depend on scenic resources and healthy ecosystems. A chemical spill, well blowout, or other catastrophic event could have irreversible consequences for the region that serves as the gateway to Denali National Park and Preserve and includes other high value land and water resources. Full disclosure also gives emergency responders and the public the ability to develop emergency response plans and take other precautions that will help protect human health and safety, public water resources, and the environment in the event of a fracturing-related incident.

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<sup>25</sup> Charles W. Schmidt, Environmental Health Perspectives, *Blind Rush? Shale Gas Boom Proceeds Amid Human Health Questions* (Aug. 1, 2011), available at <http://ehp.niehs.nih.gov/119-a348/> (last visited Mar. 29, 2013).

<sup>26</sup> Colorado School of Public Health, *Study Shows Air Emissions Near Fracking Sites May Have Serious Health Impacts* (Mar. 19, 2012), available at <http://attheforefront.ucdenver.edu/?p=2546> (last visited Mar. 29, 2013).

<sup>27</sup> Alaska Const., art. 8 § 3.

<sup>28</sup> *Id.* § 2.

We wish to reiterate the recommendations concerning public notice and disclosure made in DCC's comments submitted jointly with TWS and other groups and to emphasize and expand on a few particularly important aspects of those recommendations:

Require Full Disclosure in Permit Application *Before* Project Approval. In the air, water, and waste permitting contexts, it is standard practice for a project proponent to be required to submit a comprehensive permit application disclosing all aspects of the proposed project and the resources that will be affected. This gives the permitting agency the information necessary to analyze the potential environmental and human health impacts, and it gives the agency a basis for establishing appropriate permit terms and conditions. In accordance with tried and true environmental permitting procedures, the AOGCC should likewise require a gas operator to provide comprehensive information about proposed hydraulic fracturing operations in its permit application. Then, after obtaining any necessary supplemental information, the AOGCC should prepare a draft permit. In addition to direct notification of nearby landowners and other affected parties, as discussed below, both the permit application and the draft permit should be made available for general public review through an effective mechanism, such as the Alaska Online Public Notice system. The notice should also inform the public about to access a user-friendly, searchable, and downloadable database of hydraulic fracturing-related information, as described in more detail in the joint comments.

The AOGCC should provide a meaningful opportunity for public comment (i.e. a minimum of 30 days for written comment, with extensions and public hearings possible where there is public concern), and the AOGCC should prepare a well-considered response to those comments in conjunction with its preparation of the final permit.

It is also important for the AOGCC to ensure that the final permit terms and conditions reflect the information presented in the permit application and all applicable regulatory requirements, and the permit should be written in a manner that is unambiguous and binding on the gas operator. If the operator wishes to change the operation in any significant respect, it should be required to seek an amendment to the permit and go through another round of public notice and comment. The same procedural steps should also be applied when a gas operator is seeking a variance or waiver from regulatory or permitting requirements.

The steps in the process outlined above have evolved to help agencies properly carry out their role in our system of governmental checks and balances. These steps help agencies demonstrate that they are carrying out the will of the legislature and acting in a manner accountable to the public, and they help agencies justify the reasonableness of their decisions to a reviewing court. The time for full disclosure, public participation, and informed decision-making is *before* hydraulic fracturing operations are approved and *before* there is any potential for harmful impacts.

#### Expand Scope of Notification for Landowners and Other Directly Affected Parties.

Under the proposed regulation, hydraulic fracturing operators are required to notify and provide a complete copy of the hydraulic fracturing application to “all owners, landowners, surface owners, and operators within one-quarter mile of the wellbore trajectory.”<sup>29</sup> DCC believes this requirement is inadequate to ensure complete notification of all individuals potentially impacted by hydraulic fracturing operations. Potential impacts from hydraulic fracturing extend far beyond one-quarter mile of the wellbore trajectory, and they are felt by landowners as well as many others who use and enjoy the lands and waters of the area. Hydraulic fracturing operations disturb geologic formations and aquifers in ways that can lead to persistent and widespread contamination of aquifers and surface water. This problem is amplified when little is known about the extent, depth, and directional flow of such waters, which is true of most of the water resources in the Denali area. Accordingly, DCC urges AOGCC to require direct notification of all landowners and other affected parties within a 10-mile radius of a well and/or anyone whose property uses or overlies the aquifers to be potentially impacted. This would include the National Park Service if activities were to be conducted in the watershed of any rivers that flow out of or into the park. The Savage River watershed, for instance, lies within the Healy Gas license area. This notice should be in addition to a more generalized public notice published through the Alaska Online Public Notice system or something comparable to it, as well as a widely accessible and user-friendly online database of fracturing-related information, as discussed above.

Expand Content of Full Disclosure in Permit Applications. A permit application for hydraulic fracturing should include detailed and comprehensive information regarding all aspects of the proposed operation and the affected environment. DCC urges AOGCC to ensure that the permit application includes the following information as well as any other information necessary for the public and AOGCC decision-makers to be fully informed about proposed hydraulic fracturing operations *before* they are approved:

- Baseline water quality for all ground water and surface water resources reasonably anticipated to be affected by the proposed operations;
- Baseline quantity, flow, and depth information for all underground aquifers, as well as for all surface water resources expected to be used in or affected by the proposed operations;
- Baseline air quality information;
- Baseline seismic information;
- Baseline geologic information about all formations that the well traverses, potential formations to be fractured, or that may otherwise be affected by fracturing operations, including liquids and gases associated with each formation;

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<sup>29</sup> 20 AAC 25.283(a)(1) (proposed regulation).

- All proposed hydraulic fracturing fluids and their concentrations, including both base fluids and all additives that are to be injected as part of fracturing operations, including any chemicals associated with proppants;<sup>30</sup>
- Well-borne pressures proposed to be used in fracturing operations;
- Detailed structural diagrams and operational plans for the proposed fracturing operations and all related activities, including well construction, well integrity, drilling and fracturing equipment and methods, leak prevention and detection, corrosion prevention and detection, flaring, air pollution controls, water extraction, wastewater injection, safety equipment, buffers, associated roads, pads, pipelines, and all other equipment, structures, and facilities and an explanation of how they are involved in the proposed operations;
- Location of abandoned wells within the lease or unit;<sup>31</sup>
- Anticipated composition of wastewater generated by the proposed operations;
- Proposed plans for storage, handling, and disposal of all hazardous materials, including hydraulic fracturing chemicals and wastewater;
- Emergency response plans, equipment, supplies, training, and personnel; and
- Monitoring, recordkeeping, and reporting procedures.

In addition, DCC requests that the Alaska Department of Health and Social Services Health Impact Assessment (HIA) program be incorporated into the process of any hydraulic fracturing operations that overlap with residential areas, as is the case in the Healy Basin. Because of the potential for environmental contamination associated with hydraulic fracturing operations, and the potential effects such contamination could have on human health, it is critical that the State of Alaska fully analyze the potential health effects of fracturing operations. The operator could be held financially responsible for this if it is made a requirement of the permit application, which we feel it should be.

Expand Identification of Drinking Water. The proposed regulations require that, prior to hydraulic fracturing, the gas operator must submit a permit application that includes “identification of freshwater aquifers within one-quarter mile radius.”<sup>32</sup> Due to the nature of hydraulic fracturing operations, DCC believes this proposed regulation falls short of the requirement that AOGCC must “regulate hydraulic fracturing in nonconventional gas wells to ensure protection of drinking water.”<sup>33</sup> DCC believes this proposed requirement must be expanded to include all freshwater aquifers and surface waters that will potentially be impacted by hydraulic fracturing activities, including reinjection and

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<sup>30</sup> See Matthew McFeely, Natural Resources Defense Council, *State Hydraulic Fracturing Disclosure Rules and Enforcement: A Comparison* (July 2012), available at [www.nrdc.org/energy/files/Fracking-Disclosure-IB.pdf](http://www.nrdc.org/energy/files/Fracking-Disclosure-IB.pdf) (last visited April 1, 2013).

<sup>31</sup> Abandoned wells are often a conduit for water contamination. *See id.*

<sup>32</sup> 20 AAC 25.283 (a)(3) (proposed regulation).

<sup>33</sup> AS 31.05.030(j)(2)(A).

wastewater containment and disposal. Additionally, the regulation is not clear about the center point of the ¼ mile radius. In the context of hydraulic fracturing wherein horizontal drilling is frequently a component, it is improper for AOGCC to require only identification of the aquifers surrounding the wellhead point on the surface. Hydraulic fracturing may involve horizontal drilling extending through bedrock up to one mile from the wellhead. Moreover, ¼ mile is itself insufficient. DCC urges AOGCC to include all freshwater aquifers that come in contact with any fracturing activities, including wastewater disposal through reinjection.

Strengthen Disclosure of Freshwater Aquifers. The proposed regulations also require the gas operator to submit a permit application that includes “the geologic name and depth (MD and TVD) to the bottom of all freshwater aquifers.”<sup>34</sup> DCC would like to point out a few flaws with this requirement. First, the proposed regulation does not require the applicant to disclose its scientific basis for determining the depth of an aquifer. Second, the proposed regulation does not require the applicant to determine the horizontal extent of freshwater aquifers. Third, the proposed regulation does not require the applicant to determine the direction or speed of water flow through aquifers. DCC urges the AOGCC to revise its proposed regulation to require a gas operator to provide this information, including sufficient supporting scientific and technical data, as part of its permit application.

Prevent Contamination of Water and Land with Toxic Substances. A matter of key importance for DCC is whether the AOGCC regulation will include sufficient measures to prevent releases of toxic chemicals into the environment. Such releases would be disastrous for the communities of the Denali Borough and for the wildlife and scenery that are so important for residents and visitors. To that end, DCC feels that several of the changes recommended in the joint letter are critically important, namely:

- Surface and intermediate casing requirements;
- Well integrity requirements;
- Requirement to use non-toxic drilling fluids;
- Requirements for secondary containment for hydraulic fracturing chemicals and a prohibition on the use of surface impoundments;
- Water sampling and monitoring;
- Chemical disclosures; and
- Elimination of inappropriate confidentiality and trade secret provisions that would interfere with the public’s ability to assess the risks of potential contamination.

Provide for Interagency Consultation. Because hydraulic fracturing operations have the potential to affect a variety of public resources (such as drinking water, fish, wildlife,

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<sup>34</sup> 20 AAC 25.283(a)(11) (proposed regulation).

wetlands, rivers and lakes), overlap with other regulatory regimes (such as those governing air quality, surface water quality, and solid and hazardous waste disposal), and require the services of emergency responders, DCC urges AOGCC to incorporate into its permitting process a formal procedure for interagency consultation with the Alaska Department of Environmental Conservation, Alaska Department of Natural Resources, Alaska Department of Fish & Game, Alaska Department of Health and Social Services, and the Alaska Department of Public Safety, as well as the appropriate Borough, City, and tribal government authorities.

#### IV. CONCLUSION

DCC is pleased that AOGCC has proposed to adopt hydraulic fracturing regulations aimed at protecting water sources and the health and safety of all Alaskans. Without such regulations, DCC fears that hydraulic fracturing operations will harm the ecological and wilderness values associated with the Denali region and will pose a threat to the health and safety of local residents and visitors. We urge AOGCC to promptly adopt the proposed provisions and to incorporate the recommendations outlined in this comment letter and in the joint comment letter submitted by DCC along with TWS and other groups.

As part of its active role in assuring protection of citizens, wilderness, and ecosystems from the harmful impacts of industrial activities, DCC appreciates this opportunity to present its concerns directly to AOGCC. We hope that these comments offer AOGCC constructive suggestions for improvement of its proposed hydraulic fracturing regulations, and we thank you for your consideration of these comments. If you have any questions or need further information, please do not hesitate to contact us or Charlie Loeb of DCC.

Sincerely yours,

A handwritten signature in blue ink, appearing to read 'T. B. Clemmer', is written over a light blue circular stamp.

Teresa B. Clemmer, Esq.  
Karen E. Schmidt, Esq.

Cc: Charlie Loeb, DCC  
Hannah Ragland, DCC  
Nancy Bale, DCC  
Barrett Ristroph, TWS  
Lois Epstein, TWS