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SENT VIA HAND DELIVERY AND EMAIL

July 26, 2018

Colorado Oil and Gas Conservation Commission  
ATTN: Bob Koehler, UIC Lead Engineer  
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Re: NGL Water Solutions, LLC, Injection Well Permit Application, South Weld  
SWD #1 well, Document Nos. 401602089 and 401600785

Dear Bob,

I am writing as a follow-up to the letter that Denver Water submitted June 18, 2018 opposing the Injection Well Permit Application for SWD #1 well. The injection well application filed by the Applicant, NGL Water Solutions, LLC ("NGL") and the notice received by Denver Water have led to some confusion. NGL, by letter dated June 4, 2018, sent Denver Water a notice regarding the application for an injection well named "South Weld SWD #2." Denver Water objected to this application and believed this to be the SWD#1 well for which NGL submitted an application to the Commission. After conferring with you, it is Denver Water's understanding that the SWD #1 and SWD #2 wells are not the same. Currently, NGL has submitted an application for the SWD #1 well, and appears to have only begun the application process for the SWD #2 well.

To be clear, Denver Water does not withdraw its prior objection letter sent June 18, 2018. Denver Water renews its objections to NGL's application(s) for the SWD #1 well, and to the extent an application exists, the SWD #2 well. Denver Water asks that the applications be dismissed. The wellheads, located in the NE4 of Section 30-T1N-66W of the 6<sup>th</sup> P.M., are approximately a ½ mile away from the south end of Denver Water's Lupton Lakes Reservoir Complex ("Lupton Lakes") located in the SE4 of Section 19-T1N-66W. The planned bottom hole locations are in the NE4 of Section 30-T1N-66W of the 6<sup>th</sup> P.M. for SWD #1 and in the SE4 of Section 19-T1N-66W for SWD #2, which are approximately ½ mile and less than a ¼ mile away from Lupton Lakes respectively. In addition to the objections raised in its June 18 letter, Denver Water's further objects to the application(s) based on dangers to public health, safety, and welfare caused by induced seismicity and Denver Water's ownership of the pore space below Lupton Lakes.

## Public Health, Safety, and Welfare

Denver Water's Lupton Lakes Reservoir Complex ("Lupton Lakes") is in the E2 of Section 19-T1N-66W (the "South Cell") and the SE4 of Section 18-T1N-66W (the "North Cell"). Lupton Lakes is immediately adjacent to U.S. Highway 85. Additionally, the North Cell embankment will be a jurisdictional dam regulated by the State Engineers' Office of Dam Safety, which if breached may cause impacts to public safety, health, and welfare. For obvious reasons, the Colorado Department of Transportation ("CDOT") is concerned with Lupton Lakes slope stability adjacent to Highway 85 and reviews Denver Water's slope stability analysis pursuant to the Lupton Lakes mining permit.<sup>1</sup>

Denver Water has completed construction of the North Cell groundwater cutoff wall, reservoir slopes, and embankment and is currently proceeding with the construction of the South Cell groundwater cutoff wall. South Cell reservoir slopes have not yet progressed to final design. Both the North Cell and South Cell slopes have, or will be, designed in general accordance with the Colorado Rules and Regulations for Dam Safety and Construction to meet high hazard dam requirements, which includes an expected Peak Ground Acceleration ("PGA") equivalent to a one-percent probability of exceedance in 50 years. The PGA the site would experience during an earthquake was estimated using the United State Geologic Survey probabilistic seismic hazard disaggregation earthquake ground motion calculation software. The North Cell was designed using the 2008 USGS software version, which resulted in a PGA of 0.128g or 12.8-percent of the acceleration of gravity. Commission staff stressed in the July 9, 2018 meeting that seismicity below a magnitude of 2.5 is not usually felt at the surface. This, however, ignores the fact that structures may experience seismic-induced stress in exceedance of design standards at such magnitudes. The Commission's own table for Planning-Risk Management (upon which its "traffic light system" is premised) shows that seismic activity in the "green" area can have peak ground accelerations up to 0.17g, which exceeds the North Cell design parameter of 0.128g.<sup>2</sup> According to this table and just as concerning, the Applicant will be allowed to continue injection operations with no modifications so long as there is "no seismicity felt at the surface" and seismicity is "[l]ess than M2.5 within 2.5 miles."

Denver Water's engineers have reviewed the North Cell embankment and slopes design and conclude that an increase in the PGA above 0.128g may cause deformation. Denver Water objects to approval of an injection well so close to Lupton Lakes that could contribute to the increase of the current USGS PGA upon which Denver Water, as well as other cooperating state agencies, have based design, review, and construction of the Lupton Lakes embankment and slopes.

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<sup>1</sup>Permit No. M-2004-078

<sup>2</sup>See attached PowerPoint, Slide 22. This table was part of the PowerPoint presentation sent by Mr. Bob Koehler July 5, 2018 and titled "COGCC Underground Injection Program & Induced Seismicity, Colorado State Land Board," dated April 2018. Mr. Stuart Ellsworth presented a similar table when Commission staff met with Denver Water on July 9, 2018.

## **Pore Space**

Denver Water owns the Lupton Lakes surface estate, which includes the pore space beneath the reservoirs. Denver Water has not granted a subsurface easement to NGL for the injection of fluids into its pore space, nor has it waived the damages from seismicity that may result from the increased pressures in the injection formation. Denver Water is not only confident that it owns its pore space, but also confident Colorado courts will agree.<sup>3</sup> Denver Water, as well as its ratepayers and the general public, relied on the fact that when Lupton Lakes was purchased there were no plans to locate an injection well that could inject fluids into its pore space. Additionally, Denver Water reasonably relied on the fact that its reservoir would not be subjected to induced seismic activity without its consent. Denver Water designed and constructed Lupton Lakes based on its ownership and, as mentioned before, the standard accepted seismic assumptions in the area. Accordingly, Denver Water has a protected property right.

## **Minimal Permit Conditions**

The Applicant must be required to send notice of its injection well permit application to, and consult with, the Colorado Department of Transportation and State Engineer's Office of Dam Safety prior to further consideration or approval of the permit by the Commission. In the event the Commission staff decide to approve the permit despite Denver Water's objections, the permit should contain the following minimal conditions:

1. The Applicant shall be required to install a seismic monitor on site.
2. The Applicant shall be required to file a report monthly with Commission, which report shall be publicly available. The report shall include daily maximum injection rates, daily maximum injection pressure, any seismicity recorded by the seismic monitor in which the calculated peak ground acceleration exceeds 0.128g, and any other conditions the staff or Commission deem necessary to protect the health, safety, and welfare of the public.
3. The depth of the injection zone shall maintain a distance of at least 500 feet from the basement rock. In the event the final bottom hole depth is closer than 500 feet to the basement rock, the well bore shall be plugged back accordingly.
4. The injection rate shall be set at a maximum of no more than 10,000 barrels/day. Any requested increase shall be subject to the same notice and procedural requirements of

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<sup>3</sup> See, e.g., *Burlington Res. Oil & Gas Co. v. Lang and Sons, Inc.*, 259 P.3d 766, 770 (Mont. 2011) ("The pore space ... belongs to [the] surface estate in the same manner that all the non-mineral material beneath the physical boundaries of [the] property belongs to [the] surface estate."); *Ellis v. Arkansas-Louisiana Gas Co.*, 450 F.Supp. 412, 422 (E.D. Okla. 1978) (surface owner has right to grant or deny permission to store non-native gas in empty pore space). See also, *Moser v. U.S. Steel Corp.*, 676 S.W.2d 99, 102 (Tex. 1984); *Emeny v. U.S.*, 412 F.2d 1319 (Ct. Cl. 1969); *United States Steel v. Hoge*, 468 A.2d 1380 (Pa. 1983); *Jilek v. Chicago, Wilmington & Franklin Coal Co.*, 47 N.E.2d 96 (Ill. 1943); *Mound City Brick & Gas Co. v. Goodspeed Gas & Oil Co.*, 109 P. 1002, 1004 (Kan. 1910).

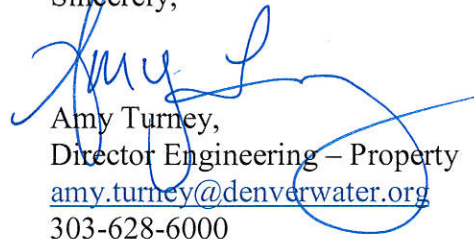


a new application. Additionally, Applicant shall be required to contact all surface owners of record within 2.5 miles of the permitted bottom hole location(s).

5. The Applicant shall reimburse Denver Water for measures, risk mitigation, or regulatory compliance it would not otherwise take or secure in order to monitor, enhance, upgrade, retrofit, fortify, redesign, modify, install, or otherwise protect the stability of its current and future reservoir embankment, slopes, facilities, and installations related to Lupton Lakes as a result of this permit being issued, including but not limited to the installation of a Denver Water seismic monitor, retrofitting of completed embankments and slopes, and changes to the anticipated design of embankments, slopes, facilities, and installations.
6. The Applicant shall reimburse Denver Water for the value of lost water storage due to measures, risk mitigation, or regulatory compliance undertaken in response to this permit being issued.
7. The Applicant shall immediately curtail its injection operations when the onsite seismic monitor records seismicity with a calculated peak ground acceleration at or greater than 0.128g. The Commission shall adjust daily injection rates in order to reduce peak ground acceleration in the area to below 0.128g.
8. The Applicant shall be required to post a bond sufficient to cover damages to third parties, including from seismicity, attributed or related to injection well operations.

Denver Water respectfully requests that staff continue to inform it of the progress of Applicant's permit(s) in this locale and appreciates the staff's consideration of Denver Water's objections.

Sincerely,

  
Amy Turney,  
Director Engineering – Property  
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303-628-6000

cc: James Wittler, Esq., Office of General Counsel, Denver Water  
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