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PRESIDENT'S OFFICE

March 8, 2021

Mr. Kevin Rowsey
Source Water & UIC Section
Drinking Water & Source Water Protection Branch
U.S. Environmental Protection Agency, Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Mr. Rowsey:

I am writing to express the Seneca Nation's opposition to the Class II-D UIC Permit Application PAS2D050BPOT by Roulette Oil and Gas Co., LLC ("ROGC") for a proposed injection well to be located in Clara Township, Potter County, Pennsylvania.

The Seneca Nation is committed to protecting the waters that flow through our ancestral lands. Water is a vital part of our culture and at each recitation of our thanksgiving address, the Ganö:nyök, we give thanks for the waters. Our Allegany Territory encompasses the Ohi:yo' (Allegheny River) whose headwaters are located, in part, in Potter County, Pennsylvania. Recent studies cite evidence that wastewater from underground injection sites can make its way to nearby surface waters.[1] The Seneca people find this profoundly disturbing and oppose the issuance of any permit that would allow activity that jeopardizes the headwaters of the Ohi:yo'.

Activities in a headwater region fundamentally impact downstream environment. There are many risks, uncertainties, and unknowns associated with this proposed injection well, raising an essential question: Why allow this proposed activity in Pennsylvania's most pristine watershed? Permitting

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[1] *See,* "Evidence of unconventional oil and gas wastewater found in surface waters near underground injection site," USGS.gov (May 9, 2016). https://www.usgs.gov/news/evidence-unconventional-oil-and-gas-wastewater-found-surface-waters-near-underground-injection
See also, "In Ohio, regulators respond to suspected frack waste spewing from unused gas well, causing fish kill," State Impact NPR (Feb. 5, 2021). https://stateimpact.npr.org/pennsylvania/2021/02/05/in-ohio-regulators-respond-to-suspected-frack-waste-spewing-from-unused-gas-well-causing-fish-kill/

UIC wells in Pennsylvania sets negative precedent. From a January 14, 2021, *Pittsburgh Post-Gazette* article: "There are approximately 180,000 Class II wells in the U.S., 20%, or 36,000 used for disposal of oil and gas drilling and fracking wastewater. The EPA estimates that more than 2 billion gallons of those fluids are injected into such wells in the U.S. each day, mostly in Texas, California, Oklahoma, and Kansas."[2] However, there are only 13 injection wells in Pennsylvania, 8 of which are operating. The relative absence of Class II injection wells in Pennsylvania is because the geology of Pennsylvania was historically assumed not to support this type of well. As explained in the attached comments, Permit Application PAS2D050BPOT fails to justify a deviation from the longstanding practice of avoiding this type of well in the geology of Pennsylvania.

Based on the points discussed above (and in the attached comments), the Seneca Nation objects to the EPA approving Permit Application PAS2D050BPOT.

Nya:wëh,

President Matthew B. Pagels

Enclosure:

Seneca Nation Comments to Underground Injection Control Permit Number PAS2D050BPOT Authorization to Operate a Class a II-D Injection Well

[2] "Governor asked to intervene on Plum wastewater injection well," PITTSBURGH POST-GAZETTE (January 14, 2021). https://www.post-gazette.com/news/environment/2021/01/14/Governor-asked-to-intervene-on-controversial-wastewater-injection-well/stories/202101140118

Seneca Nation Comments to Underground Injection Control Permit Number PAS2D050BPOT Authorization to Operate a Class a II-D Injection Well

March 4, 2021

1. The Proposed Injection Well has the possibility of causing the incidental loss of or damage to cultural resources, including those of significance to the Seneca Nation. The EPA should require compliance with the National Historic Preservation Act ("NHPA"), specifically Section 106 (36 CFR Part 800), which would minimize and mitigate impacts by requiring a cultural resource investigation. Consultation with the Seneca Nation and interested parties on this cultural resource investigation will ensure compliance with the regulations of the NHPA. Special buffers or protections necessary for protection of historic or cultural resources can be determined based on individual site conditions.

2. Only a limited number of states (10) have actually permitted hazardous waste disposal wells. Even though Class II wells disposing oil and gas industry waste are exempt from being classified as toxic or hazardous under current federal law, they are indeed HAZARDOUS to human health and the environment. Permitting UIC Class II wells for disposal fails to protect safe drinking water and human health in the long-term.

3. Class II well construction is not rated for containment of hazardous materials. Class I wells require at least 2 layers of concentric casing and cement, an outer (or surface) casing cemented to the surface and tests during drilling to ensure no vertical migration of fluid. In contrast, Class II wells are only required to be cased or cemented to prevent movement of fluids into drinking water sources without specific design criteria. Federal UIC Class II statutory mandates are inadequate and fail to address the hazards associated with the oil and gas industry operation, and protection of human health and the environment should be prioritized. There is no measurable assurance water resources are protected.

4. The Proposed Injection Well has the potential to affect precious pristine headwaters of the Allegheny River, a concern since shale gas wastewater is often considered the dirtiest processed water on earth. Failures and even normal operations increase the risk of toxic chemical and radioactive contamination of surface and groundwater. While groundwater contamination is the primary concern, there are also related risks to surface water (explosions, spills related to transport and storage, etc.).

5. Even one spill or failure at the Proposed Injection Well could have severe consequences. There is no way to clean up contaminated groundwater other than natural attenuation, and

attenuation of radioisotope contamination would take more than 1,000 years.

6. The capacity of the Allegheny watershed to handle existing and proposed oil and gas development has never been assessed and yet cumulative impacts of oil and gas related activities in the upper Allegheny watershed have a direct effect on the Allegheny River and Seneca Nation Territory. The permit fails to consider long term cumulative impacts.

7. ROGC has 437 oil and gas wells across six counties, with 274 located in Potter County. Their Application states that brine intended for disposal will come from 110 of their conventional oil and gas wells. However, no information was provided that guarantees only waste from those wells would be injected; that is, whether or not waste from unconventional shale gas wells or other companies will be accepted. It appears that ROGC principals are also principals for the oil & gas companies "Potter-McKean Resources of PA" and "Simon of Bolivar Enterprises." No information is provided on whether or not waste from these ROGC-associated companies will be accepted at the Proposed Injection Well. Likewise, no information was provided regarding the capacity of the Proposed Injection Well (daily/annual, etc.).

8. ROGC's Application (Attachment J: Business Description) notes that "Gas is produced from approximately 300 wells in Potter County . . . ROGC also produces oil in McKean County, PA and Allegany County, NY." But according to the most recent PADEP Oil & Gas Production Report, it appears that ROGC also has multiple active gas wells in Elk County, PA, and McKean County, PA, so the proposed permit may implicate wastewater from more wells than just those located in Potter County.

9. There are increased risks due to structural deficiencies of Clara field well #20:

   a. It is necessary to determine the possible influence of the surrounding wells on the effectiveness of the Proposed Injection Well (pressures, failures, and groundwater contamination, etc.).

   b. It is imperative to assess the condition of Clara field wells #11, 19 & 20 and other wells within a 1-mile radius of Clara field well #20 as opposed to the standard ¼ mile radius.

   c. ROGC's record of noncompliance with regulations and Pennsylvania Department of Environmental Protection's limited enforcement record at the existing conventional wells in the Clara Field (few inspections) do not instill confidence that the Proposed Injection Well will be operated or monitored safely.

10. More information is needed regarding the quality of the wastewater that will be accepted. The Application mentioned that TDS concentration would be 173K mg/ L, but doesn't discuss other major wastewater other contaminants such as nutrient, heavy metals, surfactants and radioisotopes. The chemical and physical analysis of the injection fluid is insufficient to be protective of water resources. Safe drinking water is compromised due to the lack of regulatory standards to protect it.

11. The ancillary effects of the Proposed Injection Well will include an increase in trucks, noise, road damage, and surface and groundwater pollution. The construction of a large industrial site in a rural community will have everlasting effects. Residents utilize groundwater as their primary source of drinking water. The local economy is dependent on

the current high quality of the environment.

12. Special Status Species – the EPA should require ROGC to identify any and all special status species that would be affected by habitat loss and fragmentation and disruption from noise and traffic at the Proposed Injection Well site. Likewise, the EPA should require ROGC to comply with the EPA and USFWS guidelines for mitigating or reducing impacts on special status species. All plans should seek to reduce the risk of habitat loss and species. Special buffers or protections necessary for historic or cultural resources should be determined based on individual site conditions. The current Application lacks sufficient information to make these determinations with respect to special status species.

13. Injection wells are based on an unknown science; all assumptions that are made modeling flow into aquifers are based on natural geologic conditions.

    a. "'There is no certainty at all in any of this, and whoever tells you the opposite is not telling you the truth,' said Stefan Finsterle, a leading hydrogeologist at Lawrence Berkeley National Laboratory who specializes in understanding the properties of rock layers and modeling how fluid flows through them. 'You have changed the system with pressure and temperature and fracturing, so you don't know how it will behave.'"[1]

    b. When injection wells intersect with production wells and abandoned wells, the combined effect is that many of the natural protections assumed to be provided by deep underground geology no longer exist. Additionally, migration of contaminants may be enhanced due to activities at other wells.

    c. There are upwards of 2 million abandoned and plugged oil and gas wells in the U.S., more than 100,000 of which may not appear in regulators' records. Many abandoned wells are supposed to be sealed shut with cement, but studies show that cement breaks down over time, allowing seepage up the well structure.

    d. Gaps have emerged between theories of how underground injection should work and how it works in practice. Rock layers aren't always neatly stacked as they appear in engineers' sketches. They often fold and twist over on themselves. Waste injected into such formations is more likely to spread in lopsided, unpredictable ways than in a uniform cone. It is also likely to channel through spaces in the rock as pressure forces it along the weakest lines.

14. Increased inspection frequency minimizes impact due to well integrity failures. Operators are required to do so-called "mechanical integrity" tests at regular intervals, at least once every five years for Class 2 wells. In Texas, one violation was issued for every three Class 2 wells examined in 2010. Most well failures are patched within six months of being discovered, EPA data shows, but with as much as five years passing between integrity tests, it can take a while for leaks to be discovered. And not every well can be repaired.

15. The Application does not sufficiently describe ROGC's proposed monitoring and record keeping processes. According to data provided by States to the EPA, deep well operators are often caught exceeding injection pressure limits, and ROGC's Application does not

[1] "Injection Wells: The Poison Beneath Us," Abrahm Lustgarten, PROPUBLICA (June 21, 2012).

provide adequate assurances that ROGC will not do the same.

16. Reckless permitting allows radiological contamination to persist in the environment. Once environment is negatively impacted it is rarely restored. It is our responsibility (all peoples) to consider seven generations and leave quality fresh water for our grandchildren.

17. The EPA should increase parameters that are required to be monitored in order for the permit to be granted. Additional pollutants of concern are Calcium, Phosphates, Nitrates, Potassium, Sulfates, Bromide and Strontium. Minimally, more analytes should be added to the monitoring requirements (i.e. 2,4,6-Trichlorophenol, 2-Butanone, acetone, acetophenone, benzene, ethyl benzene, glycol, methyl alcohol, o-Cresol, p-Cresol, phenolics, pyridine, surfactants, pH, turbidity, and conductivity) with increased frequency of testing for contaminants of concern (i.e. Cadmium, Chromium, Copper, and Radium).

18. Pressure used to force waste into UICs will increase seismicity and likelihood of earthquakes. Injecting fluid into sedimentary rock can produce bigger, more distant earthquakes than injecting into the underlying basement rock.[2] Additionally, the USGS states: "Wastewater disposal wells typically operate for longer durations and inject much more fluid than is injected during the hydraulic fracturing process, making them more likely to induce earthquakes."

19. The Application defines how wells are plugged, but there is no indication as to who is responsible for continuance of monitoring the Proposed Injection Well.

20. President Biden has made a commitment to make environmental justice a part of the mission of every agency by directing federal agencies to develop programs, policies, and activities to address the disproportionate health, environmental, economic, and climate impacts on disadvantaged communities. Clara Township citizens have voiced their concerns and oppose the permit. If this Application for permit is approved, it raises the question of whether the granting of this permit is consistent with President Biden's environmental justice commitment where the views of the citizens of the local community are not taken into account.

21. The proposed Permit should not be allowed to be modified to increase acceptance from other operators or unconventional wells.

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[2] "The spatial footprint of injection wells in a global compilation of induced earthquake sequences," Thomas H.W. Goebel and Emily E. Brodsky, 361 SCIENCE 899-904 (Aug. 2018).