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December 1, 2023

John Rhoderick
NMED-GWQB
New Mexico Environment Department
Attn: Water Reuse Regulation
P.O. Box 5469
Santa Fe, New Mexico 87502

Delivered via email: pw.environment@env.nm.gov

Re: Comments on NMED's
Supplemental Requirements
for Water Reuse

Dear Mr. Rhoderick,

Thank you for the opportunity to comment on NMED's proposed "Ground and Surface Water Protection – Supplemental Requirements for Water Reuse" (20.6.8 NMAC).

ExxonMobil values water as an essential resource, and we strive to be a leader in safeguarding water resources. Not only is conserving water resources one of ExxonMobil's sustainability focus areas, it is also important to our employees and their families who live and work in communities across the Permian Basin that rely on water every day. We support efforts for water reuse and look for ways to use water more efficiently.

Based on our review of the draft rule, we offer the following recommendations:

Key Priority Items

1. Treated produced water discharge to a surface water.

In 20.6.8.400.A(1), both treated and untreated produced water are prohibited from being discharged to surface water. While a request to discharge treated produced water to surface water may be unlikely, there are some scenarios where this option may be necessary. Examples include water conservation projects and backup outlet options for complex water reclamation systems that would normally supply water to an alternate water reuse demand. Discharge permitting should be based on water quality rather than the water origin. A water's origin and disposition may instead guide a discharge permit's monitoring and reporting requirements.

For this reason, we request that the topic of treated produced water discharge be separated from untreated produced water, and that a permitting option remain (pending water quality specifications).

2. Treated produced water discharge to ground water.

In 20.6.8.400.A(3), the rule states “Until such a time that water quality criteria based on scientifically defensible information about the composition, toxicity, fate and transport of treated produced water is adopted by the commission, the department shall not approve a discharge plan or a discharge plan modification that includes the discharge of treated produced water.”

While we agree that providing criteria for treated produced water is important, this language is repetitive of subparagraph 20.6.8.400.D(1). For this reason, we request that this line be replaced with “Criteria for such discharge shall be defined per 20.6.8.400.D.” with further modification to Subparagraph D, as proposed below.

In addition, additional clarity is needed to distinguish intentional discharge to ground water and *de minimis* or incidental drainage of irrigation water to ground water, particularly when the ground water in an area of irrigation is not appropriate for potable use. To avoid potential duplication of users pursuing permits for land application and ground water discharge for *de minimis* or incidental drainage of irrigation water to ground water, it is suggested that land application permits be recognized for addressing aspects relating to incidental drainage into ground water.

3. Authorized applications limited to Demonstration projects.

Currently, 20.6.8.400.B. outlining authorized applications only includes subparagraph (1) with requirements for demonstration projects. There is no other subparagraph to define requirements for future full-scale applications. We request that a second subparagraph be provided to maintain a pathway for eventual water reuse applications.

4. Water quality criteria.

In 20.6.8.400.D(1), the rule states “Until such a time that water quality criteria based on scientifically-defensible information about the composition, toxicity, fate, and transport of treated produced water demonstrates fit for purpose and authorized applications are adopted by the commission, discharges of untreated or treated produced water to surface and ground waters of the state are prohibited and the department shall not approve a discharge plan or a discharge plan modification for the discharge of treated produced water.”

First, the inclusion of “untreated” produced water is repetitive, as the earlier subparagraphs clearly prohibit discharge of untreated produced water to surface and ground water. Therefore, please remove the reference to “untreated” produced water.

Second, we agree that water quality criteria are important and recognize existing standards such as those in support of irrigation and other applications defined in

20.6.4.900.J NMAC. There needs to be consistency to the State's current surface and ground water discharge permitting process (e.g., such as criteria defined in 20.6.4.900.J NMAC.)

A proposed alternate wording to 20.6.8.400.D(1) is as follows:

“The agency shall base criteria for treated produced water reuse applications unrelated to the exploration, drilling, production, treatment, or refinement of oil or gas, upon established criteria for irrigation and other applications in WQCC 20.6.4.810 and per WQCC 20.6.4.900.J.”

5. Demonstration project definition.

First, it appears that there are four types of tests/studies that have been defined: a Bench-Scale Project, a Pilot-Scale Project, a Demonstration Project, and a Feasibility Study. As an opportunity to streamline the rule, we suggest that feasibility studies are inherent within the objective of the others and therefore not needed to be separated from the others. A feasibility study could be performed as a bench test to evaluate chemistry principles, or as a pilot test to evaluate design aspects, or as a demonstration study to evaluate commercial viability. Therefore, for the purpose of this rule, we believe that rules pertaining to bench tests, pilot tests and demonstration studies will be sufficient.

Second, demonstration projects should be defined as those tests that are open system (i.e., interaction with the environment where water would be released to the land, surface, or ground water). Bench-scale projects and closed-system pilot-scale projects are small scale tests done in an environmentally-contained setting such as a laboratory. Permitting for these activities should not be required by this rule. Bench tests are performed as the first step of experimentation to explore ideas, concepts, and theories. Just like any other scientific study, these tests should be conducted in accordance with applicable existing rules/regulations including those that cover transport, handling, and waste disposal. Requiring permitting of such tests would first and foremost be cumbersome to NMED staff who would be required to review such information. Furthermore, creating regulatory oversight on such basic tests would add time delay and limit flexibility to respond to unexpected experiment outcomes (e.g., changes to experimental design).

6. Data disclosure requirements.

In 20.6.8.400.C(1)(a), there is a requirement to disclose research plan and objectives. Certain plans and objectives may be considered proprietary to those companies attempting to create intellectual property. Further, in 20.6.8.400.C(2) there is a requirement to submit all research results, including lab analyses of all water contaminants in the untreated produced water and treated produced water. This presents numerous challenges. First, some of this information may be considered proprietary to the researchers. Second, some data may include on-line instrumentation data recorded at very short timelines (seconds to minutes) and this data would be too voluminous to share. Third, some of the data may be non-representative, in error, or

otherwise would need to be excluded. For instance, a test may be discovered to be performed incorrectly or influenced by external factors that negate the use of data.

Data disclosure requirements would release potentially proprietary information to competitors and the public (via Inspection of Public Records Act requests). This would hinder the scientific development process and therefore could slow the development of associated technology or prevent such work in New Mexico. To address the need "...to assist the commission in developing standards and regulations...", we suggest addressing this need with an alternate approach by adding a sentence or new clause in 20.6.8.400.D that reads as follows:

"Persons pursuing open system demonstration projects or full-scale applications shall include in their application a summary of relevant data sufficient to assist the commission in developing requirements, authorizations, and the broader use of treated produced water."

Our shared goals of defining criteria for treated produced water reuse will help drive information sharing outside of a regulatory mandate.

7. Definition of terms.

This draft rule contains a significant number of defined terms. However, many of these terms are not used in the rule beyond the initial definition. While we recognize that the complete rulemaking is being completed in phases, and several sections are reserved, it is difficult to review and comment on the definitions without understanding in context how the terms will be applied in the future rule.

For this reason, it would be most prudent to remove the unused term definitions until the future rules using the terms are issued.

In addition, there are some terms used throughout the document that have very close definitions and seem to be used interchangeably (e.g., reclaimed wastewater vs. reuse water). These should be reviewed and combined where possible.

Other Comments (in order of rule)

Additional comments and recommended changes are provided in Attachment 1, which is a redlined version of the rule's text.

ExxonMobil appreciates the opportunity to provide these comments. If you have any questions, please do not hesitate to contact John Faber at john.r.faber@exxonmobil.com.

Sincerely,

Kelly Coppola

ATTACHMENT 1

TITLE 20 ENVIRONMENTAL PROTECTION
CHAPTER 6 WATER QUALITY
PART 8 GROUND AND SURFACE WATER PROTECTION – SUPPLEMENTAL REQUIREMENTS FOR WATER REUSE

20.6.8.1 ISSUING AGENCY: Water Quality Control Commission.
 [20.6.8.1 NMAC - N, mm-dd-yy]

20.6.8.2 SCOPE: All persons subject to the Water Quality Act, NMSA 1978 Sections 74-6-1 et seq and specifically to persons intending to reuse any type of wastewater and their operations.
 [20.6.7.2 NMAC - N, mm-dd-yy]

20.6.8.3 STATUTORY AUTHORITY: Standards and regulations are adopted by the commission under the authority of the Water Quality Act, NMSA 1978 Sections 74-6-1 through 74-6-17 and the Produced Water Act, NMSA 1978 Subsection D of Section 70-13-4.
 [20.6.8.3 NMAC - N, mm/dd/yy]

20.6.8.4 DURATION: Permanent.
 [20.6.8.4 NMAC - N, mm-dd-yy]

20.6.8.5 EFFECTIVE DATE: Month Day, Year, unless a later date is cited at the end of a section.
 [20.6.8.5 NMAC - N, mm-dd-yy]

20.6.8.6 OBJECTIVE: The objective of 20.6.8 NMAC is to supplement the general requirements of 20.6.2.1200 through 20.6.2.2201 NMAC and the general permitting requirements of 20.6.2.3000 through 20.6.2.3114 NMAC to control the discharges of water contaminants specific to water reuse.
 [20.6.8.6 NMAC - N, mm-dd-yy]

20.6.8.7 DEFINITIONS: The following terms as used in this part shall have the following meanings; terms defined in the Water Quality Act, but not defined in this part, will have the meaning given in the act.

A. Terms beginning with numerals or the letter “A,” and abbreviations for units.

- (1) **“~~30-day~~ Monthly Average”** For fecal coliform bacteria: means the geometric mean of the values for all effluent samples collected during a calendar month. For other than for fecal coliform bacteria: means the arithmetic mean of the daily values for all effluent samples collected during a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
- (2) **“Agricultural application”** means the application of ~~domestic or industrial~~ reuse water for cultivating the soil and growing crops or irrigating pasture for livestock grazing. Agriculture application includes the use of water in connection with the operation or maintenance of feedlots or agricultural application of water, but not those activities defined as livestock application.

Comment: Since this term is not used yet, suggest removal. In particular, since it states domestic or industrial reuse water there is a perception that it is a de facto prohibition of treated produced water reuse for this application.

- (3) **“Agronomic rate”** means the rate of application of nutrients to plants that is necessary to satisfy the plants’ nutritional requirements while strictly minimizing the amount of nutrients that run off to surface waters or that pass below the root zone of the plants.
- (4) **“Application”** means a final disposition of a treated wastewater as it pertains to water reuse. Different uses may have different effluent criteria dependent on the needs for protection ~~for ground and surface water of the environment~~ and human health. Applications may include, but are not limited to industrial, agricultural, direct or indirect potable, recreational turf, rangeland, ecological restoration or other defined fit for purpose applications. Applications have ~~effluent defined~~ criteria dependent on the needs for protection for ground and surface water and human health and aquatic health.
- (5) **“Aquifer”** means an underground body of sediment or rock that contains or can transmit ground water.
- (6) **“Aquifer recharge”** means a manmade or natural process enhanced by humans to convey water underground and replenish ground water stored in aquifers.
- (7) **“Aquifer storage”** means a manmade or natural process enhanced by humans to convey water underground and replenish ground water stored in aquifers and later recovered for use.

B. Terms beginning with the letter “B”.

- (1) **“Bench-scale project”** means a small-scale project or study conducted in a laboratory using small quantities of materials.

Comment: Use of word “small” in definition is vague. The regulation should focus on projects that connect water to the open environment.

- (2) **“Brackish water”** means water that has a dissolved solids concentration between 1,000 and 10,000 milligrams per liter (mg/L).

Comment: There are various published thresholds. It is unclear what the purpose of this defined term is.

C. **Terms beginning with the letter “C”.**

- (1) **“Class 1A reuse”** means domestic reuse water that has a water quality more stringent than Class 1B and is appropriate for most applications except direct consumption.
- (2) **“Class 1B reuse”** means domestic reuse water that has a water quality less stringent than Class 1A and is appropriate for applications where public exposure is likely.
- (3) **“Class 2 reuse”** means domestic reuse water that has a water quality less stringent than Class 1B, but more stringent than Class 3. Water quality of Class 2 is appropriate for applications in which public access and exposure is restricted or limited temporally and spatially.
- (4) **“Class 3 reuse”** means domestic reuse water that has a water quality less stringent than Class 2. Class 3 has the least stringent criteria and is only appropriate for applications in which public access and exposure is prohibited.
- (5) **“Coal bed methane”** means a form of natural gas extracted from coal beds.

Comment: The purpose of defined term is unclear.

- (6) **“Commercial application” or “industrial application”** means the application of ~~domestic or industrial~~ reuse water in connection with any activity that provides, or offers to provide, goods or services for consideration, not including domestic applications, incidental to a commercial or industrial facility where, at a minimum, public access is restricted or limited.

Comment: Since this term is not used yet, suggest removal. In particular, since it states domestic or industrial reuse water there is a perception that it is a de facto prohibition of treated produced water reuse for this application.

- (7) **“Composite sample”** means an environmental sample collected over time, either by continuous sampling or by mixing discrete samples and represents the average characteristics of the sample media during the compositing period. Unless otherwise approved by the department for specific applications, composite sampling shall be conducted as follows:
- (i) 3-hour Composite Sample: means three discrete samples collected no closer together than one hour and no further than 6 hours together and composited in proportion to flow.
- (ii) 6-hour Composite Sample: means six discrete samples collected no closer together than one hour and no further than 4 hours together and composited in proportion to flow.
- (iii) 24-hour Composite Sample: means twenty-four discrete samples collected no closer together than one hour and composited in proportion to flow.
- (iv) daily composite sample: as defined in 20.6.2 NMAC.
- (8) **“Conventional well”** means ~~a well that can economically produce~~ oil or gas resources ~~that come~~ from formations that have ~~good-sufficient~~ permeability and porosity that allow for natural gas and oil to flow through the pores and into a standard wellbore ~~without the necessity of hydraulic fracturing the formations. Extracting fossil fuels from these geological formations can be done with standard methods that can be used to economically remove the fuel from the deposit.~~ Conventional wells are generally vertical wells.

Comment: The purpose of defined term is unclear.

D. **Terms beginning with the letter “D”.**

- (1) **“Defacto application”** means an application of water that is substantially composed of treated wastewater such as where communities draw their water supplies from rivers that receive treated wastewater discharges from communities upstream.
- (2) **“Demonstration project”** means a bench-scale or pilot-scale project, as defined in this Part ~~where the water is released to the land, surface, or ground water.~~

Comment: If a bench-scale or pilot-scale test is not causing water to be released to land, surface, or ground water then it should not be subject to further regulation.

- (3) **“Department”** means the New Mexico environment department.

- (4) **“Direct potable”** means the application of ~~reclaimed wastewater~~ reuse water for drinking water purposes. Direct potable applications convey the ~~reclaimed wastewater~~ reuse water to a community drinking water systems without an intermediary environmental buffer.
- (5) **“Discharge”** means spilling, leaking, pumping, pouring, ~~emitting,~~ or dumping of a water contaminant in a location and manner where there is a reasonable probability that the water contaminant may reach ground or surface water.
- (6) **“Discharge permit”** as defined in 20.6.2 NMAC.
- (7) **“Discharge plan”** as defined in 20.6.2 NMAC.
- (8) **“Discharge site”** as defined in 20.6.2 NMAC.
- (9) **“Disposal”** means to abandon, deposit, inter or otherwise discard a fluid as a final action ~~after its use has been achieved.~~

{NOTE: (10) IS MISSING}

- (140) **“Domestic wastewater”** means untreated wastewater containing human excreta and water-carried waste from typical residential plumbing fixtures and activities, including but not limited to, wastes from toilets, sinks, bath fixtures, clothes or dishwashing machines and floor drains.

- (121) **“Dwelling unit”** means a structure that contains bedrooms.

E. Terms beginning with the letter “E”.

- (1) **“Effluent”** means the final water component following the treatment of wastewater that may be discharged pursuant to a ground water or surface water discharge permit, a national pollutant discharge elimination system permit (NPDES), or under another state or federal permit, for disposal, transference, or water reuse.
- (2) **“Environmental buffer”** means any, ground water, streams, lakes, or impoundments used for reuse water storage or conveyance purposes related to an indirect potable application.

Comment: Suggest alternate phrase. An environmental buffer may not be specifically subject to a potable application, but rather as a protection against environmental degradation, such as in the use of a constructed wetlands to mitigate impacts of an effluent prior to conveyance to a non-potable environment.

- (3) **“Establishment”** means a structure used as a place of business, education, or assembly.

Comment: Verify consistency with other rules (e.g., OSHA defines “establishment” as “a single location where business is conducted or where services/operations are performed”).

F. Terms beginning with the letter “F”.

- (1) ~~**“Feasibility study”** means a study conducted by a person to determine if a new or modified wastewater treatment technology will be technically, economically, or financially viable for use in an application.~~

Comment: Eliminate term from this Part. Feasibility studies can be performed at bench-scale, pilot-scale, and large demonstration scale. Adding this term is duplicative.

- (42) **“Fit for purpose”** means any application of a treated domestic, industrial, or produced wastewater that, with ~~effluent~~ criteria defined in this Part, ~~that~~ serves a function that would otherwise require the use of ~~freshwater~~ the state’s potable, surface, and ground water resources and has been determined to be ~~protective of the waters of the state~~ appropriate for the stated use.

Comment: The word “effluent” and the phrase “protective of the waters of the state” do not fit all potential reuse applications (for example, treated reuse water that is used in cement manufacturing).

- (23) **“Flood irrigation”** means land application of ~~reclaimed wastewater~~ reuse water by ditches, furrows, pipelines, low flow emitters, and other non-sprinkler methods.

- (34) **“Flowback water”** means the fluid returned after the hydraulic fracturing process is completed, where the internal pressure of the rock formation causes fluid to return to the surface through the wellbore. Flowback water is a component of produced water.

- (45) **“Food crop application”** means application of ~~domestic or industrial~~ reuse water to domestic plants which are produced for the purpose of or may be used in whole or in part for, consumption by people or livestock, including, but not limited to nursery, root, seedstock to be used for the production of food crops.

Comment: Since this term is not used yet, suggest removal. In particular, since it states domestic or industrial reuse water there is a perception that it is a de facto prohibition of treated produced water reuse for this application.

(56) **“Formation water”** means water that occurs naturally within the pores of rock ~~associated with oil and gas extraction.~~

G. Terms beginning with the letter “G”.

- (1) **“General NPDES permit”** means a “NPDES permit” issued under Section 122.28 of the Clean Water Act authorizing a category of discharges within a geographical area.
- (2) **“Grab sample”** means either a single discrete sample or an individual sample collected over a temporal interval not to exceed 15 minutes.
- (3) **“Ground water”** as defined in 20.6.2 NMAC.

H. Terms beginning with the letter “H”.

- (1) **“Hydraulic fracturing” or “fracking”** means a technique that fractures a rock formation that stimulates the flow of natural gas or oil, increasing the volumes that can be recovered. Fractures are created by pumping large quantities of fluids at high pressure down a wellbore and into the target rock formation. Hydraulic fracturing fluid commonly consists of water, proppant, and chemical additives, that open and enlarge fractures that can extend several hundred feet away from the wellbore. This technique is generally used in unconventional oil and gas production.

Comment: While this term is not used, the extent of detail is likely not required.

I. Terms beginning with the letter “I”.

- (1) **“Impoundment”** means any structure designed and used for storage or containment of wastewater.

Comment: The purpose of defined term is unclear. Are tanks, treatment vessels, and pipes considered impoundments?

- (2) **“Indirect potable”** means the application of ~~reclaimed wastewater~~ reuse water for drinking water purposes with an intermediary environmental or constructed buffer.
- (3) **“Industrial application”** see definition for “commercial application”.
- (4) **“Influent”** means untreated wastewater that flows into a treatment system.
- (5) **“Injection”** as defined in 20.6.2 NMAC
- (6) **“Injection well”** means the well used to place fluid underground into a porous geologic formation. These underground formations may range from deep sandstone or limestone to a shallow soil layer. Injected fluids may include water, wastewater, brine (salt water), or water mixed with chemicals.

Comment: The purpose of defined term is unclear. If keeping, verify consistency with other regulations including Federal rules.

- (7) **“Irrigation”** means application of water to land areas to supply the water needs of ~~beneficial~~ plants.

J. Terms beginning with the letter “J”. [RESERVED]

K. Terms beginning with the letter “K”. [RESERVED]

L. Terms beginning with the letter “L”.

- (1) **“Land application”** means the application of ~~domestic or industrial~~ reuse water to the ground surface in which the water is used by the plant and soil matrix by natural physical, chemical, and biological processes. ~~no fit for purpose use has been assessed and to which the application or run-off does directly or indirectly enter a surface or ground water of the state.~~

Comment: Since this term is not used yet, suggest removal. In particular, since it states domestic or industrial reuse water there is a perception that it is a de facto prohibition of treated produced water reuse for this application. It also includes the phrase “no fit for purpose” within the definition which adds an unnecessary negative perception of land application.

It is also unclear if incidental drainage of irrigation water into the soil matrix with potential for reaching the groundwater table is intended to be included in ground water discharge permitting. This lack of clarity may drive users to also apply for a ground water discharge permit for any land application requests. To address this, modification to 20.6.8.400.A(3) is proposed.

Note: while “Land Application” is not explicitly defined in 20.6.6 NMAC, discharge permits for land applications are governed by that Part. If land application in 20.6.8 is intended to be similar, suggest that it be clarified as authorized by a discharge permit under 20.6.8. Need to clarify boundaries between these two Parts.

- (2) **“Livestock application”** means the application of ~~domestic~~ reuse water for the consumption of water for the care and feeding of ~~domestic~~ animals such as cattle or horses. Livestock application does not include the use of water in connection with the operation or maintenance of feedlots or agricultural application of water.

M. Terms beginning with the letter “M”.

- (1) **“Major facility”** means any treatment plant with a maximum design capacity of 1,000,000 gallons or more per day.
- (2) **“Minor facility”** means any treatment plant with a maximum design capacity of less than 1,000,000 gallons per day.
- (3) **“Monthly geometric mean”** means the value calculated by taking the sum of the logarithms (sum log x) of each of the data points from the previous calendar month, dividing the sum by the number of data points and then taking the anti-logarithm of the result ($10^y = \text{anti-logarithm of } 'y'$).

N. Terms beginning with the letter “N”.

- (1) **“National Pollutant Discharge Elimination System”** or **“NPDES”** means the federal program for issuing, modifying, revoking, and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the federal Clean Water Act. The NPDES program is administered by the United States Environmental Protection Agency (EPA) in the State of New Mexico.
- (2) **“Nephelometric turbidity units”** or **“NTU”** means nephelometric turbidity units, measured by a nephelometer.
- (3) **“NPDES permit”** means an authorization, license, or equivalent control document issued by the authorized permitting entity to implement the requirements of the federal program as identified in 40 C.F.R. Sections 122, 123, and 124. An “NPDES permit” includes an “NPDES general permit” (40 C.F.R. Section 122.28). The term NPDES Permit does not include any permit that has not yet been the subject of final agency action, such as an “NPDES draft permit” or an “NPDES proposed permit.” The surface water quality bureau assists the EPA in implementing the Clean Water Act Section 402 NPDES permit program by reviewing federal permits and preparing federal Clean Water Act Section 401 certifications to certify that the permit also complies with New Mexico law.

O. Terms beginning with the letter “O”.

- (1) **“Occupied establishment”** means any establishment that is occupied regularly.

Comment: Verify consistency with other rules (e.g., OSHA). The word “regularly” is vague. Purpose for this term unclear.

P. Terms beginning with the letter “P”.

- (1) **“Peak hourly flow”** means the highest hourly flow rate within a 24-hour period.
- (2) **“Person”** means an individual or any other entity including partnerships, corporations, associations, responsible business or association agents or officers, the state or a political subdivision of the state or any agency, department or instrumentality of the United States and any of its officers, agents or employees.
- (3) **“Pilot-scale project”** or **“pilot project”** means a representative engineering scale model or prototype system which is beyond the bench-scale and tested in a relevant environment. A pilot project represents a step up in the technology’s demonstrated readiness and tests using larger quantities of materials over longer periods of time.

Comment: The distinction between bench-scale and pilot-scale has always been imprecise and separating the two in this rule may not be necessary. Suggest that this Part focuses on the key distinction which is whether a test is open to the environment or closed such that no water is released to the environment.

- (4) **“Planned water reuse”** means an intentional and direct water reuse application ~~with the goal of beneficially reusing a recycled water supply to optimize overall water usage.~~

Comment: The purpose of defined term is unclear. The definition of water reuse is drafted, which can simplify this definition.

- (5) **“Potable water”** means ~~the process of treating water for human consumption (i.e., drinking water)~~ water that meets standards for human consumption and is suitable for direct human use such as drinking, bathing, cooking, and cleaning.

Comment: Verify consistency with other rules. Since potable water uses include non-consumption activities (e.g., dishwashing, laundry), the definition should be broader. Suggest transforming definition to “potable water”

- (6) **“Pretreatment”** means the reduction, elimination, or alteration ~~of the nature,~~ of pollutants ~~as in~~ wastewater prior to or in lieu of discharging into a publicly owned treatment works (POTW) or other wastewater treatment facility. The reduction or alteration may be obtained by physical, chemical, or biological processes, process changes, or by other means. Appropriate pretreatment technology includes control equipment, such as equalization tanks or facilities, for protection against ~~volumetric or pollutant~~

surges or ~~slug loadings~~ **load variations** that might interfere with or otherwise be incompatible with the treatment facility.

Comment: The purpose of defined term is unclear.

- (7) **“Produced water”** means a fluid (wastewater) that is an incidental byproduct from drilling for or the production of oil and gas, and includes formation water, flowback water, and any chemicals added downhole during drilling, production, or maintenance processes during the life cycle of an oil or gas well. ~~Produced water includes water pollutants, as defined in the Water Quality Act, NMSA 1978, Section 74-6-2 and in 20.6.2.7(W)(5) NMAC as well as toxic pollutants, as defined in 20.6.2.7(T)(2) or 20.6.4.7(T)(2) NMAC, that, if discharged, may move directly or indirectly into a water of the state.~~

Comment: The last sentence is relevant to other water reuse sources such as domestic and industrial wastewater. Adding this sentence here only for the definition of produced water implies a bias with wastewater origins which is not conducive to the overall goal of properly managing all water reuse applications regardless of origin.

Q. Terms beginning with the letter “Q”. [RESERVED]

R. Terms beginning with the letter “R”.

- (1) **“Reclaimed wastewater”** means domestic wastewater that has been treated to the specified levels for the defined applications and complies with other applicable local, state, or federal regulations.
- (2) **“Recycled produced water”** means wastewater that is reconditioned by a recycling facility permitted or registered with the oil conservation division of the energy, minerals, and natural resources department, and is reused within the oil and gas industry.

Comment: Is the purpose of this term to define the jurisdictional boundaries between NMED and NM EMNRD? If yes, shall this term use the phrase “the exploration, drilling, production, treatment, or refinement of oil or gas”?

- (3) **“Restoration application”** or **“ecological application”** means the use of domestic water reuse for the implementation of ecological or environmental restoration activities permitted under applicable state and federal regulations.
- (4) **“Reuse”** for purposes of this rule, means a treated wastewater originating from domestic, industrial, or produced water sources, that has undergone a level of treatment appropriate for a fit for purpose application such as agriculture, irrigation, potable water supplies, aquifer recharge, industrial processes, or environmental restoration; and conserves the state’s potable, surface, and ground water resources. Reuse water has a water quality, based on application, determined to be protective of the environment and human health. For purposes of this regulation, reuse is categorized by the source of the water (i.e., “domestic reuse” is wastewater originated from domestic sources following appropriate treatment may be used for various applications such as irrigation).

Comment: When reuse is categorized by the source of the water, it is unclear how to address commingled sources. For example, domestic wastewater will typically contain a portion of commercial and industrial wastewater.

S. Terms beginning with the letter “S”.

- (1) **“Safe Drinking Water Act”** means the federal act passed by congress in 1974 to protect public health by regulating the nations’ public drinking water supply.
- (2) **“Spray irrigation”** means land application of water through the air utilizing equipment that provides a low trajectory application and minimizes misting of the water.
- (3) **“State”** means the state of New Mexico.
- (4) **“Surface water”** means a, “surface water(s) of the state” as defined in 20.6.4.7 NMAC.

T. Terms beginning with the letter “T”.

- (1) **“Transference”** means the distribution of treated wastewater from a wastewater treatment facility to a third-party authorized for disposal, temporary storage, or reuse of the effluent.
- (12) **“Treated wastewater”** means wastewater that has undergone treatment.

Comment: The purpose of defined term is unclear. Current definition is fairly vague.

- (23) **“Treatment”** means a process in which wastewater has been reconditioned by mechanical or chemical processes to remove or eliminate contaminants, creating an effluent that can be returned to the water cycle either through discharge, transference, or reuse.

U. Terms beginning with the letter “U”.

- (1) **“Unconventional well”** means oil or gas resources that are difficult to extract as they are trapped in reservoirs with poor permeability and porosity, and it is extremely difficult or impossible for oil or natural gas to flow through the pores and into a standard well. To be able to produce from these difficult reservoirs, specialized techniques and tools are used. For example, the extraction of shale oil, tight gas, and shale gas must include a hydraulic fracturing step in order to create cracks for the oil or gas to flow through. This method is more costly than those used to produce fossil fuels from a conventional reservoirs, but this stimulation allows for the production of oil and gas from resources that were previously not economic to extract from. These resources become reserves when they can be utilized economically. Unconventional wells are generally horizontal wells.

Comment: The purpose of defined term is unclear.

{NOTE: (2) IS MISSING}

- (32) **“Untreated wastewater”** means wastewater that has not undergone treatment.

V. **Terms beginning with the letter “V”. [RESERVED]**

W. **Terms beginning with the letter “W”.**

{NOTE: (1) IS MISSING}

- (21) **“Water contaminant”** means any substance that, if discharged or spilled, could alter the physical, chemical, biological or radiological qualities of water. “Water contaminant” does not mean source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954, but may include all other radioactive materials, including but not limited to radium and accelerator-produced isotopes.

- (32) **“Water pollutant”** means a water contaminant in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life or property, or to unreasonably interfere with the public welfare or the use of property.

Comment: Verify consistency with other rules.

- (43) **“Water pollution”** as defined in 20.6.2 NMAC.

- (54) **“Wastewater”** means water ~~or other liquids~~ associated ~~directly~~ with ~~domestic~~ sewerage systems, ~~leaving commercial or industrial processes or activities~~, or produced water that is disposed of, or undergoes treatment for discharge, transference, or reuse. Wastewater in this Part does not include dairy wastewater, as defined in 20.6.6 NMAC.

Comment: Verify consistency with other rules. Is it clear in 20.6.6 which livestock are included in this rule? What about commingled animal operations?

X. **Terms beginning with the letters “X” through “Z”. [RESERVED]**

[20.6.8.7 NMAC – N, mm-dd-yy]

20.6.8.8 – 20.6.8.99 [RESERVED]

[20.6.8.8-20.6.8.99 NMAC – N, mm-dd-yy]

20.6.8.100 GENERAL PROVISIONS: Unless otherwise required by this Part, all persons are subject to the state’s Ground and Surface Water Protection Regulations (20.6.2 NMAC). This includes, but is not limited to, regulations relating to spills, notices of intent, permitting, fees, penalties, compliance orders, and abatement.

[20.6.8.100 NMAC – N, mm-dd-yy]

20.6.8.101 – 20.6.8.199 [RESERVED]

[20.6.8.101-20.6.8.199 NMAC – N, mm-dd-yy]

20.6.8.200 DOMESTIC WASTEWATER REUSE:

[20.6.8.200 NMAC – N, mm-dd-yy]

20.6.8.201 DIRECT AND INDIRECT POTABLE APPLICATIONS:

- A. **Unauthorized applications.** The department shall not approve a discharge plan or a discharge plan modification that includes the discharge of reuse water for direct or indirect **potable** applications except for those authorized applications identified in Subsection B of 20.6.8.201 NMAC.

B. **Authorized applications.**

- (1) **Feasibility studies-Demonstration Projects:** Persons proposing to conduct a ~~feasibility study demonstration project~~ for direct or indirect potable water projects shall;

- (a) Comply with all applicable permitting requirements in 20.6.2 and 20.6.4 NMAC.
 (b) Ensure there is no connection between a potable water system and the water being studied and no cross connection between ~~feasibility study demonstration project~~-water and the ~~communities~~ potable water supply exist.

Comments: add term “cross connection” to definitions and reference applicable drinking water regulation.

- (c) Ensure that all direct and indirect potable reuse ~~feasibility studies demonstration projects~~ are conducted in a manner that does not ~~materially~~ interfere with ongoing operations at the wastewater and drinking water facilities
- (d) Ensure that all indirect potable reuse ~~feasibility studies demonstration projects~~ are conducted under either a discharge permit or NPDES permit and complies with all conditions therein.

(2) [RESERVED]

Comment: including “Direct and Indirect Potable Applications” under Subpart 20.6.8.201 implies a connection to 20.6.8.200 “Domestic Wastewater Reuse” and therefore suggests that such applications are to be considered for reclaimed domestic wastewater and not considered for other origins such as industrial wastewater, treated produced water, and other water reuse origins such as storm water. Also, while the rest of this Part implies an organization according to water reuse source, this Subpart begins a separate organization according to type of application. If there is a need for both, suggest segregating the two (source-based vs. application-based) instead of this order.

20.6.8.202-299 [RESERVED]

[20.6.8.201-20.6.8.299 NMAC – N, mm-dd-yy]

20.6.8.300 INDUSTRIAL WASTEWATER REUSE: [RESERVED]

[20.6.8.300 NMAC – N, mm-dd-yy]

20.6.8.301-399 [RESERVED]

[20.6.8.301-20.6.8.399 NMAC – N, mm-dd-yy]

20.6.8.400 PRODUCED WATER REUSE: Except as provided in the Oil and Gas Act NMSA 1978, Sections 70-13-1 through 70-13-5, the following provisions apply to the discharge of produced water for activities unrelated to the exploration, drilling, production, treatment, or refinement of oil or gas.

Comment: general jurisdictional barriers with regard to OCD and others need to be clarified.

A. Unauthorized applications.

- (1) **Untreated and treated produced water discharges to surface water:** In accordance with this part, an ~~untreated~~ produced water discharge to a surface water of the state, as defined in 20.6.4.7(S)(5) NMAC is prohibited and not considered a fit for purpose. No person shall cause or allow untreated produced water ~~or treated produced water~~ to discharge to a surface water of the state. The department shall deny certification of any federal permit proposing to discharge untreated ~~or treated~~ produced water to a surface water of the state. ~~No person shall cause or allow treated produced water to discharge to a surface water unless the discharger has obtained a discharge permit approved or certified by the department. Water quality criteria for such discharge shall be defined per 20.6.8.400.D.~~
- (2) **Untreated produced water discharges to ground water:** No person shall cause or allow untreated produced water to discharge so that it may move directly or indirectly into ground water. The department shall not approve a discharge plan or a discharge plan modification that includes the discharge of untreated produced water.
- (3) **Treated produced water discharges to ground water:** No person shall cause or allow treated produced water to discharge so that it may move directly or indirectly into ground water, unless the discharger has obtained a discharge permit ~~or land application permit approved by the department. Until such a time that water quality criteria based on scientifically defensible information about the composition, toxicity, fate and transport of treated produced water is adopted by the commission, the department shall not approve a discharge plan or a discharge plan modification that includes the discharge of treated produced water.~~ Criteria for such discharge shall be defined per 20.6.8.400.D.

Comment: To avoid potential duplication of users pursuing permits for land application and ground water discharge for *de minimis* or incidental drainage of irrigation water to ground water, it is suggested that land application permits be recognized for addressing aspects relating to incidental drainage into ground water.

B. Authorized applications.

- (1) Demonstration projects, determined by the department to not require a discharge permit because the project will not discharge in a manner that may directly or indirectly affect ground or surface water, given the following provisions:

- (a) Persons intending to conduct a demonstration project shall secure all applicable federal, state, and local permits and certifications.
- (b) The demonstration project shall be designed to provide information specific to untreated produced water quality, treatment technologies, treated produced water quality, treatment volumes, and toxicity studies or potential produced water reuse applications.

Comment: regarding information specific to treatment technologies, please note that some tests will be evaluating technology that is considered to be confidential business information. The rule must allow for certain intellectual property that is maintained as confidential.

- (c) In accordance with 20.6.2.1201 NMAC, persons intending to conduct a demonstration project using untreated or treated produced water shall submit a notice of intent to the ground water quality bureau of the department and include the information enumerated in Subsection C of 20.6.8.400 NMAC of this part.
- (d) Demonstration projects shall not commence until a determination on the notice of intent has been made by the department.

Comment: Is there a defined timeline for the department's determination to be made?

- (e) Persons transporting, storing, treating, or utilizing untreated or treated produced water shall have written procedures at the location(s) where the demonstration project is physically located to prevent releases onto the ground, directly or indirectly into ground water, or to surface water of the state.
- (f) All untreated and treated produced water shall be handled, transported, and stored in accordance with all other applicable local, state and federal regulations.
- (g) Any release of untreated or treated produced water is subject to the notifications and corrective actions in 20.6.2.1203 NMAC.
- (h) Persons disposing of untreated or treated produced water, as part of the final disposition following a demonstration project, shall use one of the following methods: discharge to a produced water disposal well permitted pursuant to the oil conservation commission's regulations for oil and gas injection (19.15.26 NMAC), delivery to a surface waste management facility permitted pursuant to the oil conservation commission's regulations for oil and gas surface waste management facilities (19.15.36 NMAC), or disposal in a permanent pit permitted pursuant to the oil conservation commission's regulations for oil and gas pits, closed-loop systems, belowgrade tanks and sumps (19.15.17 NMAC).

Comment: Bench-scale tests in laboratories will likely have *de minimis* amounts of water to manage. Laboratories should be allowed to manage this water similar to their routine sample testing volumes.

- (i) Persons disposing of the components of a demonstration project using untreated or treated produced water, as part of the final disposition must adhere to all local, state and federal regulations, as applicable.

(2) [RESERVED]

C. Notice of intent.

- (1) In accordance with 20.6.8.400(B) NMAC, any person intending to use produced water for approved purposes, unrelated to the development or production of oil or gas, shall submit to the ground water quality bureau of the department a produced water notice of intent prior to use.
 - (a) Notices shall be on a form provided by the department and shall include the following information:
 - (i) the name and address of the person intending to conduct the discharge;
 - (ii) the location of the intended discharge;
 - (iii) the demonstration project research plan and objectives;

Comment: note that certain details on research objectives may be considered to be confidential business information.

- (iv) documentation that the demonstration project design is consistent with the approved applications in Subsection 20.6.8.400(B) NMAC;
- (v) the storage, secondary containment and spill prevention methods that will be used to prevent accidental discharges;
- (vi) plans to transport in and transport out any untreated produced water or treated produced water in a safe manner, in accordance with state and federal regulations;

- (vii) plans for safe handling and proper disposal of produced water and any materials that come into contact with produced water or treated produced water, including soils, plant material, treatment equipment, and containment area materials; and
 - (viii) health and safety considerations that minimize the risk of human exposure to produced water via any exposure pathway.
- (b) The department may request additional information if needed.
 - (c) Based on the information provided in the notice of intent, the department shall make a determination if the demonstration project is consistent with the requirements in this Section and whether a discharge permit is required. If the demonstration project does not meet the requirements in this or if a discharge permit is required, the person shall not implement the demonstration project as proposed.
- (2) Persons implementing demonstration projects shall submit to the department ~~all-relevant~~ research results, including ~~applicable~~ lab analyses of all water contaminants in the ~~untreated produced water and~~ treated produced water, to assist the commission in developing standards and regulations that may allow for the broader use of treated produced water in a manner that prevents water pollution and protects human health and the environment.

Comment: certain details may be considered to be confidential business information. Some data may be non-representative, in error, or otherwise needed to be excluded from sharing. Some data may include on-line instrumentation recording data on very short timelines (seconds to minutes) and would be too voluminous to share. If a pilot has a flaw and needs to be abandoned, its data would be unlikely to be worth disclosing, and such disclosure may be misleading to a technology's development and future application. This clause would restrict companies from pursuing research. Therefore, we recommend narrowing the focus to certain statistical summaries (e.g., mean, minimum, maximum) and data that would be necessary to obtain a future discharge permit or subsequent request for a larger application. We also recommend adding a timeline for approval.

D. Effluent Quality

- (1) ~~Until such a time that water quality criteria based on scientifically defensible information about the composition, toxicity, fate, and transport of treated produced water demonstrates fit for purpose and authorized applications are adopted by the commission, discharges of untreated or treated produced water to surface and ground waters of the state are prohibited and the department shall not approve a discharge plan or a discharge plan modification for the discharge of treated produced water.~~ The agency shall base criteria for treated produced water reuse applications unrelated to the exploration, drilling, production, treatment, or refinement of oil or gas, upon established criteria for irrigation and other applications in 20.6.4.810 NMAC and per 20.6.4.900.J NMAC. Persons pursuing open system demonstration projects or full-scale applications shall include in their application a summary of relevant data sufficient to assist the commission in developing requirements, authorizations, and the broader use of treated produced water.

[20.6.8.400 NMAC – N, mm-dd-yy]

20.6.8.401-20.6.8.899 [RESERVED]

[20.6.8.401-20.6.8.899 NMAC – N, mm-dd-yy]

20.6.8.900 REFERENCES: [RESERVED]

[20.6.8.900 NMAC – N, mm-dd-yy]