March 4, 2016

Department of Conservation
801 K Street, MS-24-02
Sacramento, CA 95814
Attention: UIC Discussion Draft

To whom it may concern:

E&B Natural Resources is a small company producing oil and gas. We employ 2 70 people providing jobs and economic stability for our employees and their families. Our employees actively participate in the communities in which we operate. Local economies benefit from the company's investment in operations and the community. Our comments reflect E&B's strong desire to maintain the economic viability of the fields we produce.

With the current oil price environment, existing operations that are barely economic will become un economic as a res ult of industry being required to comply with new regulations. In addition to the UIC draft regulations, other regulations are being proposed by numerous agencies at the local, State and Federal level in a completely unaligned and fragmented manner. Each agency appears driven to increase regulatory oversight and are acting as if they are the only agency that regulates the industry when in fact there are over twenty agencies actively regulating operations . The one common thread to all of the regulations is that the y impact the local facilities we oper ate. The manpower to understand the new laws, apply them to our field environment, sequence the work in accordance with implementation requirements, train our small team of operators and design and install new equipment is a massive undertaking. DOGGR has to take into account its dual purpose preventing damage to life, health, property, and natural resources and to permit owners and operators of wells to utilize all known methods and practices to increase the ultimate recovery of the hydrocarbons. This requires the agency to take into account and understand the impacts of anticipated and proposed rules at the local, State and Federal level . The cumulative economic impact of these changes in this oil price environment will result in premature abandonment of wells and reduced revenue streams to the Counties and the State.

In regards to the specific UIC pre -rulemaking draft regulations, E&B has considerable concerns and shares the following high level points followed by comments about specific sections of the draft.

Distinctions in regulation of cyclic versus continuous steamfloods
One of our primary concern s is that there are not enough distinctions in the draft regulation between different types of injection (continuous versus cyclic steaming). Cyclic steam ing below the fracture gradient in sand stone reservoirs and above gradient for diatomite formations also needs to be considered separately. There is also cyclic

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steaming within a steamflood operation to maintain the impact of the steamflood. All of these differences need to be carefully considered and regulations should be tailored to the situation. The regulations need to be designed which take into the account the risk and physical nature of the operation. E&B would willingly answer any questions the age ncy might have and meet with the agency to help define these distinctions.

Administrative processes are inadequate
The regulations provide the agency with broad rights which are concerning, especially considering they do not include defined appeal right s for operators to dispute some decisions. If there are decisions in the regulations based on the "Division's satisfaction", there equally needs to be an administrative appeals process if the pro ducer would like to appeal the decision.

Secondly, time limits should be established after an application is submitted to the agency. This is critical to maintain "checks and balances" between the government agency and private enterprise. Without limits, it is possible that a company can experience significant delays in application process ing. An example is a UIC application submitted which requested cyclic steam ing in an area with steamflood ing. After a number of resubmissions and revisions, the application was accepted as complete (not approved) over two years later.

Another example is an application taking 1.5 years for approval to expand a steamflood pattern within an existing steamflood in a mature, established field. There were minor technical issues that should have not resulted in an excessive delay in project approval.

Section 1720.1(2)(A)
A quarter mile area of influence for a steamflood injector is beyond a reasonable boundary for fluid movement.

Section 1720.1(2)(B)
The areal extent is largely determined by the size of cyclic and therefore a maximum cycle designation by the operator would better determine the areal extent. It would seldom go beyond 100 feet.

1720.1(d) and (f)
Could there be additio nal clarity in these definitions ("freshwater" and "Underground source of drinking water")?

1724.6(a)
The data required should be comp rehensively defined in 1724.7. W e would like to propose that the Division respond with 10 working days if there are refinements requested in the Application package . There should not be an indefinite period to make additional requests. Additionally, we would like to suggest that a 45 day response time after the application is deemed complete.

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1724.6(d)
There should be an administrative process to appeal decisions noted in this section.

1724.7(a)(1) (B)
There should be a recognition that for new areas the areal extent is not fully known until there is drilling. Additionally, the fracture gradient will have to be calculated prior to injection of steam or water unless some process for testing prior to application of a UIC is allowed.

1724.7(a)(1) (C)
Please add "known" prior to "non -hydrocarbon components". An example is that there may initially be no hydrogen sulfide but produced as the oil is heated and the rocks react to steam.

1724.7(a)(1)(E) (i)
This section should not apply to historic well s already permitted . Specifically but not limited to urban areas, previously abandoned wellbores may be inaccessible and therefore cannot be re -abandoned time and time again as regulatory expectations change. While DOGGR may evolve and continue to seek additional regulation, historically abandoned wellbores neither unconditionally risk the wise development of oil and gas resources nor do they pose a health and safety risk.

The requirement of cement plugs to have a calculated top of at least 500 feet above perforations is extreme and inconsistent with existing regulations requiring cement plugs for 100 feet above the top of the perforations and do not reference calculated tops . The section should also clearly indicate that the requirement refers to the outside of the casing as cement bond log only working on the outside. For shallow wells, and other cases where due to well conditions an operator cannot get cement across all perforation, it may be infeasible to meet the regulation as written. If the top of the perforations are adequately plugged, a cement plug that does not extend fully through the perforated interval to the bottom perforation should be acceptable.

Recommended changes: Plugged and abandoned wel ls have cement across all perforations and extending at least 500 feet, if shown by calculation, or 100 feet, if shown by cement bond log, cement to surface or other method approved by the Division, above the highest of the top of a landed liner, the upper most perforations, the casing cementing point, the water shutoff holes, the intended zone of injection, or the oil and gas zone; in the event that placing cement across the perforations is not possible the well may be plugged by setting a squeeze retainer as deep as possible above the perforated interval and down squeezing a volume of cement equal to the casing volume plus 50%.

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1724.7(a)(1)(E) (ii)
We recommend deleting this. Idle wells are addressed through the idle well management rules (14 CCR 3206). In some circumstances, wells need to be drilled in advance to plan for facilities. Placing a plug in a well can cause formation damage and undue financial hardship that is not warranted.

1724.7(a)(1)(G)
There needs to be an administrative process to appeal decisions in this section.

1724.7(1)(3)(B)
Pump pressures are estimated prior to the start of a project unless a process for testing prior to the application of a UIC is allowed.

1724.7(1)(3)(H)
The concern over private water sources as it relates to the security and individual privacy laws should be clarified to the extent required by law and we suggest disclosing only what is necessary or simplify the request to require the source of water but not location of wells.

1724.7(a)(4)
Change "representative step rate test data from select wells…" to "representative step rate data from select well or wells…" In a typical reservoir, a single step rate test has proven over the years to be a good representation of all areas of the reservoir. Additional tests are redundant and very costly with no benefit.

1724.7.2
We recommended deleting this section. Requesting analyses for Class II injection activities into aquifers that are formally designed as "exempt" by the U.S. EPA does not seem to serve any useful purpose and will add unnecessary laboratory costs.

1724.10(g)
For steam injection, it is excessive to require tubing and packer set immediately above the approved zone of injection.

1724.10(i)
The calculation provided could include more factors. This calculation could be used and is more comprehensive.

> The maximum allowable surface pressure shall be referenced to a depth equal to the top (uppermost) injection perforation and should apply to those reservoirs where rock mechanics and rock properties demonstrate vertical fracturing will occur. The MASP should be calculated as follows: MASP=(0.95*Pfrac - Pρ + Pfric + Pskin + Po) where Pfrac = Fracture Gradient in PSI/ft *Depth of injection in Feet, Pρ = Injected fluid

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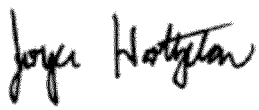
density gradient in PSI/ft * Depth o f injection in Feet due to losses in piping, etc., Pfric = Pressure loss due to friction in PSIA, Pskin = Pressure loss due to skin effects and Po = Other potential pressure losses not associated with piping or wellbore skin effects.
For reservoirs wher e rock mechanics and rock properties demonstrate horizontal fracturing will occur the MASP will be limited to those pressures, rates and perforation alignment that will prevent vertical fracturing from occurring. The Division may approve a higher allowable MASP if the provisions of 1724.7(a)(1) are complied with and the injection rates and pressures are continuously monitored.

1724.10(j)(1)
"each injection well must pass a pressure test of the casing". A quenched temperature survey would be equivalent or better for steam wells. It demonstrates the exact location where injected fluids exit the casing.

1724.11(a)(2)
Please add that this applies to injectors. Additionally, a tubing hole in the zone should not be a reportable incident.

Please consider our company's comments and include them in the record. If you have any questions, please contact me at (661) 679-1700.

Sincerely,



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