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SWRCB Clerk

California State Water Resources Control Board

Re: Comments on the State Water Resources Control Board's Draft Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation

Dear Members of the Board;

Thank you for the opportunity to comment on the draft water monitoring rules. I am a degreed petroleum engineer that has practiced this discipline for 37 years, including well stimulations all over the Western US including dozens in the Bakersfield , CA area. The following comments are offered in the hope of eliciting some clarification and modification of the proposed rules.

In general, it is my opinion that the draft rules in the current form, are overly conservative , economically untenable and significantly beyond what was approved and required under the interim rules. It is further believed that the proposed monitoring well requirements go beyond the spirit and scope of the SB4 mandate.

In the effort to participate in the process of creating a viable set of rules, the following are specific comments that are respectfully asked to be considered.

- Provision for the establishment of field rules that dictate modification or change of non-applicability of some or all of the provisions of the ground water monitoring rules. As currently set up, these rules suggest a "one size fits all" rule set that is not applicable to all fields of California . Over the years of regulation of oil & gas operations by DOGGR, field rules have been established that are particular to the varied oil & gas fields in the state. The establishment of water monitoring field rules would give the State Water Board flexibility and a resulting administrative relief for both the water board and operator.
- Rule 2.1.1- ***Number and location of monitor wells; item 1:*** overall, the number of wells required seems to assume contamination has already occurred, when the likelihood is infinitesimal based on well design requirements and given monitoring of job parameters, i.e. pump in rate and pressure in real time. Individual monitoring well costs for deeper ground water zones can be as high as $300,000 per well. The current proposed rule has the potential to rendering many stimulations uneconomic to conduct. Further, what is the monitoring benefit of an upgradient well? It is intuitive that any frac fluid contamination into an aquifer, as unlikely as it is to occur, will flow down gradient. The existence of an upgradient well is perceived to be a wasted expenditure and will provide no perceived benefit to protection of ground waters.
- Rule 2.1.1- ***Number and location of monitor wells; item 2:*** the definition of "multiple aquifers" needs to be clarified. Is this intended to mean different named formations? Or different sands within a formation? Whatever the intended definition, the most realistic and effective

monitoring interval should be the nearest or deepest available aquifer depth to the zone of stimulation. As SB4 states that the intent is to protect to the base of protected water.

Thank you again to the board for the opportunity to weigh in on this important rule making process. It is hoped that the result will be a rule set that reasonably protects ground waters of California as well as allows for providing affordable energy for its citizens. These two desired results is definitely not mutually exclusive.

Respectfully,

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