



September 22, 2021

Ms. Rajinder Sahota
Deputy Executive Officer for Climate Change & Research
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

RE: 2022 Scoping Plan Update - Short-lived Climate Pollutants Workshop - Immediate Opportunity to Speed Methane Reductions in Dairy Sector with No State Appropriation Required

(Comment submitted electronically)

Dear Ms. Sahota,

Drylet, Inc. (“Drylet”) appreciates this opportunity to provide comments on the California Air Resources Board’s (CARB) 2022 Scoping Plan Update. I am writing to recommend that to respond to the urgent necessity of achieving short-lived climate pollutant (“SLCP”) emission reductions, the California Air Resources Board (“CARB”) should fully exercise its existing Low Carbon Fuel Standard (“LCFS”) authority. In particular, CARB should exercise its discretion to review and confirm the beneficial impact of innovative technologies that enhance the performance of anaerobic digester facilities that have existing LCFS pathways. By exercising the discretion inherent to its LCFS authority, CARB can facilitate substantial additional reductions of SLCP emissions even before the 2022 Scoping Plan process is complete.

Drylet appreciates the opportunity to present this comment that illustrates the immediate potential to begin to close the methane reduction gap as well as the role Drylet’s biocatalyst can play by improving bioremediation and project economics without requiring state appropriation.

As was clearly illustrated by CARB’s slide #12 at the SLCP workshop, despite the significant progress that has been made to date, California is not on track to meet the SLCP 2030 emission reduction targets. This is consistent with the findings contained in the draft report released in June 2021, “Analysis of Progress Toward Achieving the 2030 Dairy and Livestock Sector Methane Emissions Target.” (“Dairy Methane Progress Report”). As noted in that report:

Per CARB’s 2017 Scoping Plan Update, the plan for achieving GHGs reductions in the State, SLCP reductions account for about one-third of the cumulative GHG emissions reductions the State is relying on to achieve the statewide 2030 GHG emissions target established under SB 32. (...)

This Analysis shows that the dairy and livestock sector is projected to achieve just over half of the annual methane emissions reductions necessary to achieve the target by 2030 through modifications to manure management systems—primarily using anaerobic digesters—and additional reductions through decreases in animal populations. To meet the 2030 target, the dairy and livestock sector will need to achieve considerable emissions reductions from additional

manure management projects, proven enteric mitigation strategies, or a combination of both over the next few years. (...)

If the remaining reductions needed to achieve the 2030 target are met through a mix of California dairy projects in which half are dairy digesters and half are alternative manure management projects, then at least 420 additional projects may be necessary. Local, State, and federal funding could support these projects with an amount between \$0.8 and \$3.7 billion.

Drylet’s Technology has the Potential to Save California Hundreds of Millions of Dollars by Increasing Methane Capture in Existing and Future Digester Projects

Drylet has a fully commercialized biocatalyst that dramatically augments bioremediation and that has been successfully deployed in dozens of facilities in multiple sectors. These sectors include dairy and swine farming operations, rendering operations, and food processing facilities. Drylet’s biocatalyst improves hydrolysis, the breakdown of organic matter into volatile solids, which is typically the rate-limiting step in anaerobic digestion. This increase in volatile solids breakdown leads to an increase in the food source for methanogens allowing for a 10%-30% increase in methane production in an anaerobic digester where it can be efficiently captured and beneficially utilized rather than being released (with carbon dioxide) to the atmosphere downstream of the digester. The increased volatile solids destruction in any anaerobic digester enabled by Drylet’s biocatalyst reduces the amount of undigested manure sent downstream from the digester. As a result, the use of Drylet’s biocatalyst reduces fugitive methane emissions generated in lagoons or in other digestate containment systems.

The LCFS Process Barrier: California’s LCFS has provided an enormous policy benefit supporting the development of anaerobic digester projects in California and other states. Paradoxically, the current interpretation of the LCFS program has presented a barrier to the deployment of Drylet’s technology. In discussions with CARB staff, Drylet has been advised that any deployment of its technology will be deemed to be a “process change” that would nullify the existing approved LCFS pathway of any anaerobic digester that sought to utilize Drylet’s technology to increase its methane production and capture. As a result, the facility’s existing pathway score would be unavailable for crediting and the facility would have to start the LCFS application process anew via the provisional pathway application process. As one would expect, due to the materially adverse economic impact and uncertainty that result from this approach, no facility has been willing to forego its existing LCFS pathway to break new ground on a provisional pathway. This process barrier effectively precludes the deployment of Drylet’s technology. Given California’s expeditious policy to reduce SLCP emissions and stalwart effort to achieve its 2030 emissions reductions target, we believe CARB’s objectives are best served by the agency exercising its discretion in LCFS pathway review to support deployment of innovative technologies. We anticipate that significant data gathering and oversight would be required of any facility that implements Drylet’s technology and would be fully receptive to a monitored and verified demonstration.

SB 1383 Explicitly Encourages Innovative Technologies and Market Feedback. The outcome of limiting the deployment of innovative technologies and responding to market feedback is inconsistent with the plain language of SB 1383, California’s Landmark SLCP Emission Reduction Law. As stated by Health & Safety Code §39730.5(b), “Prior to approving the short-lived climate pollutant strategy pursuant to subdivision (a), the state board shall do all of the following: (...) (4) Incorporate and prioritize, as

appropriate, measures and actions that provide the following co-benefits: (C) Potential for new innovation in technology, energy, and resource management practices.”

Similarly, the SLCP Emission Reduction Law requires that prior to adopting regulations to control methane emissions from livestock manure management operations, the state board shall: “Work with stakeholders to identify and address technical, market, regulatory, and other challenges and barriers to the development of dairy methane emissions reduction projects. (...)” Health & Safety Code §39730.7(b)(2)(A).

Finally, §39730.7(c) provides that, “If the analysis determines that progress has not been made in meeting the targets due to insufficient funding or technical or market barriers, the state board, in consultation with the department and upon consultation with stakeholders, may reduce the goal in the strategy for the dairy and livestock sectors, as identified pursuant to paragraph (1).”

Not only does the successful deployment of Drylet’s technology enables existing anaerobic digesters to increase methane production and capture, it improves the economics of future projects. Given that CARB is now facing a 50% shortfall in methane reduction in the dairy and livestock sector, we believe that CARB should immediately leverage commercialized technologies to enable the state to materially reduce methane emissions as well as accelerate the development and implementation of additional dairy and livestock sector anaerobic digester projects. This avoids the two negative outcomes that the Dairy Digester Progress Report suggests may be forthcoming: massive additional state expenditures and new regulatory restrictions to be imposed upon an important agricultural sector in the state.

Drylet’s Technology: Drylet has a novel biocatalyst solution that enables up to 30% more biogas to be generated in a digester. This technology is an innovative combination of material science and microbiology. Drylet’s BioReact AD product is comprised of carefully selected beneficial microbes embedded inside non-toxic particles made of an engineered porous media substrate. The particles are approximately 200-600 µm in size. The particles accomplish three important goals: (1) protecting the embedded microbes from viral attack and predation; (2) guaranteeing that the microbes will always have access to food, allowing the microbes to thrive and replicate rapidly; (3) ensuring that the microbes are retained for the duration of the sludge age rather than the hydraulic retention time of an AD system. The combination of these factors allows for improved bioremediation, leading to a 10%-30% increase in methane production and improved project economics.

Other important beneficial elements of Drylet’s biocatalyst technology and product description include:

- Comprised of naturally sourced, non-genetically modified microbes embedded in a food-grade silica-based media and does not require any operational or process changes to the system.
- Enables the generation of enzymes that boost volatile solids destruction in digesters and increase methane capture in the digester.
- Added to a waste stream such as dairy manure simply by introducing the biocatalyst into the digester at a miniscule application rate of ≤ 50 ppm.
- Easy to use and does not require special handling or storage
- 1 lb. of Drylet’s biocatalyst generates about 5,000 ft³ of incremental biogas

- Increases facility capital and productivity without capital expenditure
- 1 lb. of Drylet's biocatalyst destroys ~500 lbs. of volatile solids thereby reducing dredging, dewatering and disposal costs and incremental carbon emissions
- Does not adversely impact fertilizer (Nitrogen/Phosphorous/Potassium) values of effluent for beneficial agricultural use

Conclusion

The Drylet Technology offers a unique opportunity for CARB to aid in closing California's SLCP reduction gap by exercising its existing discretionary authority to review LCFS pathway applications. We would welcome the opportunity to provide any further information that would be of value to CARB on this subject.

Respectfully,



Trevor Turbidy
Chief Executive Officer
Drylet, Inc.

Cc: Richard Corey, Executive Officer
Matthew Botill, Assistant Division Chief, Industrial Strategies Division
Cheryl Laskowski, Ph. D, Chief, Transportation Fuels Branch
Anil Prabhu, Manager, Fuels Evaluation Section
Rui Chen, Manager, Fuel Project Evaluation Section