April 20, 2018

California Environmental Protection Agency
Air Resources Board
1001 I Street Sacramento, CA 95814

RE: CSA Group comments to Appendix B of the Low Carbon Fuel Standard and Alternative Diesel Fuels Regulation 2018

To Whom It May Concern:

CSA Group is an ANSI accredited standards development organization, and for nearly a decade has led the development of standards dealing with Carbon Capture and Sequestration (CCS), both domestically and internationally.

As an example, CSA Group developed the world's first bi-national (U.S./Canadian) standard, CSA Z741, which addresses requirements for safe, long-term geological storage of CO_2. Following its publication in 2012, this standard went on to become an early seed document for the work of ISO TC265. CSA Group is the Secretary of this international Technical Committee, and also leads the efforts of Working Groups developing new standards on CO_2 storage and enhanced oil recovery using CO_2. In addition to these topics, ISO TC265 focuses on CO_2 capture, transportation, quantification, and related issues.

These efforts have allowed CSA Group the opportunity to establish deep relationships with a broad network of CCS industry experts spanning state and federal agencies, university research programs, oil and gas operators, and climate scientists.

With respect to Appendix B (CCS Protocol) of the LCFS Regulations, CSA Group is pleased to present the following brief comments, which reflect a summary of the input received from CSA Group's CCS network and membership:

1. *I find it superb. The only critical comment I'd make is that there is no citation of prior standards on CCS or sources; e.g. no references to ISO nor to CSA. There are passing references to API and ASTM, of the nature "if it's OK with API it's OK with us."*

2. *I realize that these are regs, not standards nor best practices, and there is no specific responsibility to cite sources. But the regs are sure to be challenged in court, and in my opinion they would be on firmer ground if they did not appear to come out of thin air. There is clearly a lot of work behind this.*

3. *On the plus side, the proposed regulations are EXCELLENT as regards the application of the LCFS (Low Carbon Fuel Standard). What this means is that the proposed CCS project must demonstrate that, per lifecycle analysis, it will have an overall effect of reducing GHG's in the atmosphere ... which of course is the purpose of doing CCS at all.*

4. *In doing a scan of this document, I did not see anything obviously technically incorrect. But the amount of detailed instruction, reporting requirements and data submission is staggering. For example, it requires the approval of the Executive Director to change the location of a packer? If their intent is to stifle use of CCS to meet CARB requirements, then they have done a good job. One more thing.*

5. *They have limited the CCS to onshore applications, possibly to avoid legal issues? In any case, the Sleipner CCS project run by Norway in the North Sea is one of the most successful and long term CCS projects in the world. It seems very limiting to exclude CO2 storage in offshore oil fields, given California's resources in that area.*

We appreciate the opportunity to provide input to this important process, and hope the above comments are of value. Should any follow up questions arise from these comments, please do not hesitate to contact me.

Respectfully submitted,

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