SENATE COMMITTEE ON GOVERNMENTAL ORGANIZATION
Senator Bill Dodd
Chair
2021 - 2022 Regular

Bill No:	AB 1531	**Hearing Date:**	7/6/2021
Author:	O'Donnell		
Version:	4/26/2021 Amended		
Urgency:	No	**Fiscal:**	Yes
Consultant:	Brian Duke		

SUBJECT: Pipeline safety: carbon dioxide

DIGEST: This bill expands the regulatory oversight of the Office of the State Fire Marshal (SFM) to include intrastate pipelines transporting carbon dioxide, as specified.

ANALYSIS:

Existing law:

1) The Elder California Pipeline Safety Act of 1981 provides the SFM with exclusive authority to exercise safety regulatory and enforcement over intrastate hazardous liquid pipelines, as specified.

2) Imposes various requirements in relation to the regulation of these intrastate pipelines and requires the SFM to adopt regulations not later than June 30, 1991, that establish procedures for maintaining, testing, and inspecting mainline valves and check valves on intrastate hazardous liquid pipelines.

This bill:

1) Adds carbon dioxide to the existing definition of "pipeline" for the purposes of the SFM's regulatory and enforcement authority, as specified.

2) Defines "carbon dioxide" to mean a fluid consisting of more than 90 percent carbon dioxide molecules compressed to a supercritical state.

3) Requires the SFM to adopt regulations, no later than January 1, 2023, that establish procedures for maintaining, testing, and inspecting mainline valves and check valves on carbon dioxide pipelines.

4) Makes other technical, nonsubstantive changes and deletes an obsolete provision of law.

5) Includes legislative findings and declarations relating to California's economic base, skilled and trained workforce, and innovation capacity.

Background

Purpose of the bill. According to the author's office, "AB 1531 clarifies that the State Fire Marshal has the authority to regulate intrastate pipelines used for the transportation of carbon dioxide (CO2). This will ensure that pipelines used to transport CO2 for the purposes of carbon capture and storage are operating safely, allowing the state to move forward with a process that will not only help us meet our climate change goals, but also create jobs for our skilled and trained workforce."

Carbon dioxide. At normal temperatures and atmospheric pressure, carbon dioxide is an odorless and colorless gas, not flammable, and denser than air. It will not combust, but it can be fatal to humans if enclosed due to the potential for suffocation. Carbon dioxide may exist either as a solid or gas depending on temperature and pressure. Dry ice for refrigeration is a common use of carbon dioxide in solid form. When pressurized to extremely high pressures, carbon dioxide enters what is called the supercritical state.

Federal regulations define carbon dioxide as a fluid consisting of more than 90 percent carbon dioxide molecules compressed to a supercritical state. The remaining 10 percent may be comprised of gases such as water, nitrogen, oxygen, methane, or other impurities. Federal standards set carbon dioxide impurity limits for transportation pipelines.

Pipeline transportation of carbon dioxide in the supercritical state is more desirable than transportation in the gaseous state. As a dense vapor in the supercritical state, carbon dioxide can be transported more economically and efficiently using smaller pipelines and pumps because greater volumes of fluid may be transported. Most carbon dioxide is transported in the supercritical state in steel pipelines.

The beverage market is the largest segment of carbon dioxide use; however, the beverage market requires food grade carbon dioxide with a much higher purity rating than required in industrial or pipeline applications. Carbon dioxide has been used for many years to aid in the production of crude oil. Because of its higher degree of solubility in crude oil and abundance, carbon dioxide is a popular extraction tool in enhanced oil recovery projects. In enhanced oil recovery, the

carbon dioxide mixes with crude oil making the oil more mobile and easier to extract. Supercritical carbon dioxide has also grown in popularity as a solvent in the chemical industry, where it can replace more toxic, volatile organic compounds.

Elder California Pipeline Safety Act of 1981. The United States Department of Transportation Pipeline and Hazardous Material Safety Administration has exclusive federal authority over interstate pipeline facilities. An interstate pipeline is defined as a pipeline that is used in the transportation of hazardous liquid or carbon dioxide in interstate or foreign commerce. Typically, these lines cross state borders or begin in federal waters.

The SFM regulates intrastate hazardous liquid pipelines pursuant to the Elder California Pipeline Safety Act of 1981. Whereas the California Public Utilities Commission regulates intrastate gas pipelines. An intrastate pipeline is defined as a pipeline that is located entirely within state borders, including offshore state waters. The SFM may regulate portions of interstate hazardous liquid pipelines located within the state, if there is an agreement between the federal government and the SFM. As of 2015, there were 4,500 miles of intrastate pipeline in California, although that number was predicted to grow. The vast majority of pipelines in California carry petroleum based hazardous liquids. According to the SFM, there are no pending nor proposed plans for new carbon dioxide pipelines in the state. Existing law does not specify that the SFM has authority over carbon dioxide pipelines.

This bill expands the regulation of intrastate pipelines to include intrastate pipelines used for the transportation of carbon dioxide, including by revising the definition of a "pipeline" to include intrastate pipelines used for the transportation of carbon dioxide. Additionally, this bill requires the SFM to adopt regulations that establish procedures for maintaining, testing, and inspecting mainline valves and check valves on intrastate carbon dioxide pipelines no later than January 1, 2023.

Prior/Related Legislation

AB 1395 (Muratsuchi and Garcia, 2021) declares the policy of the state to achieve "carbon neutrality" as soon as possible, but no later than 2045, as specified. (Pending in the Senate Environmental Quality Committee)

FISCAL EFFECT: Appropriation: No Fiscal Com.: Yes Local: Yes

SUPPORT:

Independent Energy Producers
International Brotherhood of Boilermakers
Sempra Energy Utilities
State Building and Construction Trades Council, AFL-CIO

OPPOSITION:

None received

ARGUMENTS IN SUPPORT: In support of the bill, the State Building and Construction Trades Council, AFL-CIO writes in support of the bill that, "[t]he Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming and the International Energy Agency World Energy Outlook found that reaching net negative emissions will require a significant amount of carbon removal. Recent reports from Lawrence Livermore National Laboratory and Stanford University support these findings. These studies have found that California can deploy carbon capture and storage in the near term to abate nearly 60 million metric tons of carbon dioxide per year, approximately 15 percent of the state's current emission levels."

Further, the supporters state that, "[c]arbon dioxide pipelines are critical to scaling [Carbon Capture and Storage] CCS in California. It provides the most efficient means of transporting large amounts of carbon dioxide captured to a suitable carbon dioxide storage location, often hundreds of miles away from the source(s) of carbon dioxide. Additionally, in many locations, carbon dioxide pipelines are a significant enabler for CCS scaling as there are multiple sources of carbon dioxide in a centralized area. Even when carbon dioxide sources are closer to storage locations, pipelines are still the most efficient and effective means of transporting carbon dioxide between the source and storage location."