TEXT OF REGULATIONS

CALIFORNIA CODE OF REGULATIONS
TITLE 19. PUBLIC SAFETY
DIVISION 1. STATE FIRE MARSHAL
CHAPTER 14. HAZARDOUS LIQUID PIPELINE SAFETY

Article 9. CO2 Pipelines

§ 2170. Definitions.

(a) Definitions applicable to this Article:

(1) **Carbon dioxide** means a fluid consisting of more than 50 percent carbon dioxide molecules in any combination of the gas, liquid, or supercritical phases.

(2) **Close interval survey** means a series of closely and properly spaced pipe-to-electrolyte potential measurements taken over the pipe to assess the adequacy of cathodic protection or to identify locations where a current may be leaving the pipeline that may cause corrosion and for the purpose of quantifying voltage (IR) drops other than those across the structure electrolyte boundary, such as when performed as a current interrupted, depolarized, or native survey.

(3) **Crack arrestor** means a structural engineering device that serves to contain cracks, helping to prevent the catastrophic failure of a pipeline.

(4) **Emergency planning zone** means the area within two miles of either side of a pipeline used to transport carbon dioxide, measured from the centerline of the pipeline.

(5) **Pipeline or pipeline system** means all parts of a pipeline facility through which a hazardous liquid or carbon dioxide moves in transportation, including, but not limited to, line pipe, valves, and other appurtenances connected to line pipe, pumping units or compressing units, fabricated assemblies associated with pumping units or compressing units, metering and delivery stations and fabricated assemblies therein, and breakout tanks.

(6) **Rupture-mitigation valve (RMV)** means an automatic shut-off valve (ASV) or a remote-control valve (RCV) that a pipeline operator uses to minimize the volume of hazardous liquid or carbon dioxide released from the pipeline and to mitigate the consequences of a rupture.

(7) **Sensitive receptor**

(i) Sensitive receptor means any of the following:

(A) An education facility, including a preschool, school with transitional kindergarten, kindergarten, or any of grades 1 to 12, inclusive, daycare center, park, playground, college, or university.

(B) A community resource center, including a youth center.

(C) A health care facility, including a hospital, retirement home, or nursing home.

(D) Live-in housing, including a long-term care hospital, hospice, prison, detention center, or dormitory.

(E) A residence, including a private home, condominium, apartment, and living quarter.

(F) A building that is a business that is open to the public.

(ii) A sensitive receptor does not include a facility or building set forth in (7)(i) that is not certified for occupancy or has been abandoned.

§ 2171. Incorporated by Reference.

(a) This Article incorporates by reference the following standards:

(1) American Petroleum Institute (API Specification 5L, Line Pipe, 46th edition, April 2018, including Errata 1 (May 2018).

(2) API Recommended Practice 1130, "Computational Pipeline Monitoring for Liquids: Pipeline Segment," 3rd edition, September 2007, (API RP 1130)

(3) Form CO2-1, "Notification of Proposed CO2 Pipeline Construction", rev. 6/2025

(b) In the event of any differences between these regulations and the documents incorporated by reference then the provisions of this Article shall govern. Where a specific provision varies from the general provision the specific provision shall apply.

§ 2172. Pipelines Subject to This Article.

All segments of intrastate pipelines as specified in Government Code §§ 51010 et seq. are subject to this Article.

§ 2173. Exemptions.

(a) Abandoned pipelines are exempt from this Article.

(b) Transportation of carbon dioxide through piping or equipment used in the production, including flow lines, extraction, recovery, lifting, stabilization, separation, or treatment of carbon dioxide necessary for the preparation of carbon dioxide for transportation by pipeline at production, including flow lines, refining, or manufacturing facilities are exempt from this Article.

(c) Transportation of carbon dioxide:

(1) By vessel, aircraft, tank truck, tank car, or other non-pipeline mode of transportation; or

(2) Through facilities located on the grounds of a materials transportation terminal if the facilities are used exclusively to transfer carbon dioxide between non-pipeline modes of transportation or between a non-pipeline mode and a pipeline. These facilities do not include any device and associated piping that are necessary to control pressure in the pipeline under §195.406(b); or

(d) Transportation of carbon dioxide downstream from the applicable following point:

(1) The inlet of a compressor used in the injection of carbon dioxide ~~for oil recovery operations,~~ or the point where recycled carbon dioxide enters the injection system, whichever is farther upstream; or

(2) The connection of the first branch pipeline in the production field where the pipeline transports carbon dioxide to an injection well or to a header or manifold from which a pipeline branches to an injection well.

§ 2174. Design Requirements

(a) Existing pipelines shall not be retrofit or converted to service for carbon dioxide transportation.

(b) General. All carbon dioxide pipelines shall be constructed of steel and must be new materials and comply with relevant provisions of Title 49 of the United States Code Part 195, Subpart C – Design Requirements. Materials for pipe and components must:

(1) Be able to maintain the structural integrity of the pipeline under the full temperature range and other environmental conditions that may be anticipated. Blow down and bypass piping in carbon dioxide pipelines shall be of a material suitable for the low temperatures expected.

(2) Material for components of the system must be chosen for the temperature environment in which the components will be used so that the pipeline will maintain its structural integrity.

(3) Components of carbon dioxide pipelines that are subject to low temperatures during normal operation because of rapid pressure reduction or during the initial fill of the line must be made of materials that are suitable for those low temperatures.

(4) Be chemically compatible with carbon dioxide for transport and with any other material or other chemical components in the pipeline with which they are in contact; and,

(i) Be qualified for use under Title 49 of the United States Code Part 195, Subpart C – Design Requirements and that has been cold expanded must comply with the requirements of API Specification 5L, "Specification for Line Pipe," 45th edition, effective July 1, 2013, (ANSI/API Spec 5L).

(c) Fracture propagation. Carbon dioxide pipelines must be designed to mitigate the effects of fracture propagation including the following:

(1) Ensure resistance to fracture initiation while addressing the full range of operating temperatures, pressures, product compositions, pipe grade, and operating stress levels, including maximum pressures and minimum temperatures for shut-in conditions, that the pipeline is expected to experience. If these parameters change during operation of the pipeline such that they are outside the bounds of what was considered in the design evaluation, the evaluation and operating procedures must be reviewed and updated to assure continued resistance to fracture initiation over the operating life of the pipeline;

(2) Address adjustments to toughness of pipe for each grade used and the decompression behavior of the carbon dioxide at operating parameters;

(3) Ensure at least 99-percent probability of fracture arrest within eight pipe lengths (not to exceed 320 feet) with a probability of not less than 90-percent within five pipe lengths (not to exceed 200 feet); and

(4) Include fracture toughness testing that is equivalent to that described in the supplementary requirements of Annex G of API Specification 5L (incorporated by reference) for shear fracture area, Charpy v-notch impact test, and drop weight tear test and ensure ductile fracture and arrest as follows:

(i) The results of the Charpy v-notch impact test prescribed in Annex G must indicate at least 85-percent average shear fracture area; and

(ii) The results of the drop weight tear test prescribed in Annex G must indicate 85-percent average shear fracture area with a minimum single test result of 80-percent shear fracture area for any steel test samples. The test results must ensure a ductile fracture and arrest.

(d) Toughness. The toughness properties for pipe must address the potential for initiation, propagation and arrest of fractures in accordance with:

(1) Annex G of API Specification 5L (incorporated by reference); and

(2) Any correction factors needed to address pipe grades, pressures, temperatures, or product compositions not expressly addressed in Annex G of API Specification 5L (incorporated by reference).

(e) Alternative measures. If it is not physically possible to achieve the pipeline toughness properties of paragraphs (d) of this section, additional design features, such as mechanical or composite crack arrestors, heavier walled pipe of proper design and spacing, must be used to ensure fracture arrest as described in paragraph ~~(b)(1)(C)~~ (c)(3) of this section.

(f) Pipelines located within high consequence areas, as defined in 49 CFR 195.450, must be designed to double the minimum required strength as required by federal government regulations found at 49 CFR 195 Part C.

(g) Prior to receiving permits for construction of a carbon dioxide pipeline, operators must hold public meetings with local officials, community members, and stakeholders discussing the project routing. Operators are required to accept written and oral public comment and must respond to comments received.

§ 2174.1 Valves.

(a) General. Each valve must comply with 49 CFR §§195.116, 195.258, 195.260, 195.418, 195.419, and 195.420.

(b) Each part of the valve that will be in contact with the carbon dioxide or hazardous liquid must be made of materials that are compatible with each product stream, carbon dioxide, and each hazardous liquid that is anticipated to flow through the pipeline system.

(c) Valve locations. Valves must be placed in accordance with the following:

(1) Valves must be placed on the suction end and the discharge end of a pump station or compressor station in a manner that permits isolation of the pump station or compressor station equipment in the event of an emergency.

(2) Valves shall not be placed further than 7 ½ miles apart on pipelines located in high population areas or other populated areas as defined by 49 CFR §195.450.

(3) Emergency flow restriction device (EFRD). Operators must undertake an EFRD study and risk analysis to determine valve locations that provide for the maximum protection of human health and the environment. If an operator determines that an EFRD is needed on a pipeline segment to protect a high consequence area in the event of a hazardous liquid or carbon dioxide pipeline release, an operator must install the EFRD. In making this determination, an operator must, at least, evaluate the following factors: the swiftness of leak detection and pipeline shutdown capabilities, the type of commodity carried, the rate of potential leakage, the volume that can be released, topography or pipeline profile, the potential for ignition, proximity to power sources, location of nearest response personnel, specific terrain within the HCA and between the pipeline segment and the HCA it could

affect, and benefits expected by reducing the spill or release size. An RMV installed under this paragraph must meet all of the other applicable requirements in this part.

(i) This study must be provided to the Office of the State Fire Marshal for review and approval.

(ii) Approval shall be based on methodology and results of the EFRD study.

(iii) Vapor dispersion and Plume modeling may be used from this Section and Government Code Section 51011.7 involving emergency response planning when conducting the EFRD study.

(d) Passage of internal inspection devices shall comply with 49 CFR §195.120. In addition to the exceptions found in §195.120(b), station piping that includes compressor stations are exempt from internal inspection device passage.

(1) Internal inspection devices shall be approved by the Office of the State Fire Marshal for each inspection on an individual basis. Approval for each internal inspection may be granted by the Office of the State Fire Marshal in the form of an approval letter and shall:

(A) Comply with applicable portions of Subpart F (commencing with Section §195.452) of Part 195 of Title 49 of the Code of Federal Regulations,

(B) Be based on the risks and threats posed to the pipeline,

(C) Contain any terms and conditions that must be fulfilled by the operator in the execution of the approval letter.

§ 2174.2 Leak detection.

(a) Each pipeline transporting hazardous liquids in a single phase (without gas in the liquid) or carbon dioxide must have a system for detecting leaks that complies with 49 CFR §195.444.

(1) The leak detection system must, at a minimum, be capable of real time transient monitoring.

(2) Each computational pipeline monitoring (CPM) leak detection system installed on a pipeline transporting hazardous liquid or carbon dioxide must comply with API RP 1130 (incorporated by reference) in operating, maintaining, testing, record keeping, and dispatcher training of the system.

§ 2174.3 Fixed vapor detection, alarm systems, and safety devices.

(a) General. Each pump station, compressor station, meter station, and valve station (including facilities for launching and receiving in-line inspection tools or instrumented internal inspection devices) on a pipeline transporting an CO2 must have a fixed vapor detection and alarm system.

(b) Capabilities. Except when shutdown of the system is necessary for maintenance, each fixed vapor detection and alarm system required by this section must:

(1) Be capable of detecting any product or deleterious constituent that might be transported in concentrations above those described in paragraph (b)(2) of this section;

(2) Continuously monitor for concentrations of not more than 25 percent of the lower explosive limit for flammability, and 25 percent of the NIOSH IDLH for asphyxiation and toxicity hazards, whichever is lower; and

(3) If a concentration of vapor from paragraph (b)(2) of this section is detected, warn persons inside or about to enter the area of danger with audible and visual alarms and provide notification to personnel in an operational control center.

(c) Station safety. The following must be provided in each pump station and compressor station:

(1) Adequate ventilation must be provided in pump stations and compressor station buildings to prevent the accumulation of hazardous vapors.

(2) Warning devices must be installed to warn of the presence of hazardous vapors in any pump station or compressor station building.

(3) Safety devices that prevent over pressuring of pumping equipment and compressing equipment, including the auxiliary pumping equipment within the pump station and auxiliary compressing equipment within the compressor station.

(4) A device for the emergency shutdown of each pump station and compressor station.

(5) If power is necessary to actuate the safety devices, an auxiliary power supply.

(d) Equipment location. Except for offshore pipelines, pumping equipment and compressing equipment must be installed on property that is under the control of the operator and at least 15.2 m (50 ft) from the boundary of the pump station or compressor station.

(e) Fire protection. Adequate fire protection must be installed at each pump station and

compressor station. If the fire protection system installed requires the use of pumps, motive power must be provided for those pumps that is separate from the power that operates the station.

(f) Testing. Each fixed vapor detection, alarm systems, and safety device required under this section must be tested under conditions approximating actual operations and found to function properly before the pump station or compressor station may be used.

§ 2175. Pressure testing and spike testing.

(a) Every newly constructed, existing, relocated, or part of a pipeline system that transports carbon dioxide shall be tested in accordance with the requirements of this section and applicable portions of Subpart E (commencing with Section 195.300) of Part 195 of Title 49 of the Code of Federal Regulations. All carbon dioxide pipelines must be tested or internally inspected at least once every 5 years (60 months). In-plant or in-facility piping that crosses public rights of way, such as roads, shall also be tested consistent with the requirements of this section. An approval letter from the Office of the State Fire Marshal is required prior to conducting pressure testing on a pipeline.

(1) Pressure testing and spike testing minimum requirements:

(i) The pressure test must be at least 8 hours and 30 minutes total with 8 hours of pressure testing and 30 minutes of spike testing.

(ii) After the test pressure stabilizes at the baseline pressure and within the first 2 hours of the 8.5-hour test interval, the hydrostatic pressure must be raised (spiked) to a minimum of the lesser of 1.5 times MOP or 100% of the Specified Minimum Yield Strength of the pipe. This spike hydrostatic test pressure must be held for at least 30 minutes after the spike hydrostatic test pressure stabilizes.

(iii) The test medium may be any inert material, other than carbon dioxide.

(iv) The length of pipe being tested must be purged of all hazardous liquids prior to conducting testing.

(v) Operators shall notify the Office of the State Fire Marshal of pressure tests or inline inspections in accordance with Government Code section 51014.3.

(2) When pressure testing is required under this section, the test results shall be certified by an independent testing firm or person who is selected from a list, provided by the Office of the State Fire Marshal, of independent testing firms or persons approved annually. The list may be used for all pressure testing required on carbon dioxide and hazardous liquid pipelines. Test results must:

(i) Be submitted by the independent testing firm or person within 30 days of completion of the test to the Office of the State Fire Marshal for review,

(ii) Provide the date of the test,

(iii) Describe the pipeline tested including a map of suitable scale showing the route of the pipeline,

(iv) Detail the results of the test and any information required by the Office of the State Fire Marshal's approval letter.

(3) The Office of the State Fire Marshal shall not supervise, control, or otherwise direct the testing.

§ 2176. Vapor dispersion analysis.

(a) General. A vapor dispersion analysis is required in addition to pipeline location, routing, and notification of release requirements set forth in Government Code section 51018.9.

(1) Operators must consider the requirements found in 49 CFR §195.452 and those contained in this section.

(2) The vapor dispersion analysis may be used to supplement the emergency planning zone and plume modeling requirements of Government Code sections 51011.5(a)(2)(E) and (F).

(3) The vapor dispersion analysis must use a validated, engineering-based model and must include in its analysis, each of the following elements to determine the distance a release could affect the environment surrounding each pipeline segment:

(i) The physical and thermodynamic properties and characteristics of the product the pipeline is transporting and operating conditions of the pipeline, including but not limited to maximum operating pressure, temperature, maximum flow rate, hydraulic gradient of the pipeline, density, and vapor pressure,

(ii) The diameter of the pipeline, the potential release volume, and the distance between the isolation points,

(iii) Release characteristics, including release rates (instantaneous and continuous), orientation of the release, and phase composition of the release,

(iv) Concentrations of released product, in terms of flammability, asphyxiation, and toxicity, at which the operator determines the pipeline segment,

(v) Terrain surrounding the pipeline, including natural topography (e.g., valleys, ravines, hills, and low-lying areas) and manmade structures (e.g., buildings, roadways, ditches, and canals),

(vi) Vegetation in any area that could interact with released vapor, and

(vii) Typical weather conditions that could affect released vapor, including but not limited to humidity, prevailing winds, and temperature.

(4) Each operator using a validated, engineering-based model must review and update the analysis performed under paragraph (g) of this section at intervals not exceeding 15 months, but at least once each calendar year. In performing this review, operators must evaluate and document any material changes made to the model itself or elements used in the analysis described in paragraph (g)(1) of this section.

§ 2177 Emergency planning zone inventory and map.

Regulations to be developed to implement the following section of GOV 51015.06:

51015.06. (a) (1) An operator of a pipeline transporting carbon dioxide shall submit to the State Fire Marshal and the public agency that is the lead agency for the project that includes the pipeline for purposes of the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) an emergency planning zone inventory and map that includes all of the following:

(A) A list of all sensitive receptors within the emergency planning zone that encompasses the pipeline.

(B) A detailed map showing the location and distance to the pipeline of each sensitive receptor within the emergency planning zone.

(C) A graphic representation of the results of the validated, engineering-based computational fluid dynamics modeling, if any, used the purposes of Section 51011.6.

(2) The inventory and map shall be submitted in a format determined by the State Fire Marshal that complies with the accessibility standards specified in subdivision (a) of Section 11546.7.

(b) The operator of a pipeline carrying carbon dioxide shall provide, at least once every three years, a copy of the inventory and map determined by the State Fire Marshal and the lead agency to be complete and accurate and any updates to the inventory and map to local governments providing emergency response services to sensitive receptors within the emergency planning zone that encompasses the pipeline.

(c) The State Fire Marshal and the lead agency shall review, at least once every three years, the inventory and map submitted pursuant to subdivision (a) for completeness and accuracy and shall notify the operator of any discrepancy in the submitted inventory and map.

(d) (1) Subject to paragraph (2), the State Fire Marshal and the lead agency shall make publicly available on its internet website all inventories and maps determined to be current, complete, and accurate.

(2) The State Fire Marshal and the lead agency shall redact any personally identifiable information from the inventory and map made available to the public and shall maintain that information as confidential matter.

(e) The operator of a pipeline carrying carbon dioxide shall provide sensitive receptors identified by the validated, engineering-based computational fluid dynamics modeling with the redacted map consistent with subdivision (a) on an annual basis consistent with requirements of Section 195.440 of Title 49 of the Code of Federal Regulations for public awareness.

§ 2178. Emergency Preparedness.

(a) Training. Pipeline operators must provide annual training services for State and local emergency services, and disaster agencies for training, exercises, and equipment related to carbon dioxide pipelines. Training shall be offered to all emergency responders and interested parties, including hospitals and residents, and other utilities, along the route of the pipeline within 5 miles of the centerline of the pipe. At a minimum training shall include:

(1) How to identify a carbon dioxide release and consequences of a carbon dioxide release,

(2) Communications procedures to inform of a carbon dioxide release, including alarms, sirens, text message alerts, and other means of alerting the public,

(3) Procedures for relocating residents and others in the affected area, evacuation routes, and transportation for those impacted by a release to health care facilities,

(4) Signs and symptoms of exposure to a carbon dioxide release.

(5) Procedures for inspecting the affected areas prior to repopulation for at least the following:

(i) Presence of CO2 or other hazardous that may impact the health of sensitive receptors

as a result of the release of CO2,

(b) Prior to commencing operation of a carbon dioxide pipeline, the owner or operator of the pipeline shall develop and distribute emergency preparedness materials for resident and local businesses within 5 miles of the center line of the pipe. The operator must perform a population density survey along the pipeline route to establish an emergency planning zone. All buildings intended for human occupancy (including residences and businesses) and places of public assembly within two and a half miles on either side of the pipeline centerline must be included. The survey must collect data including the number of affected entities (including any residents or occupants), their ages, preferred language, primary and secondary phone numbers, and any specific evacuation information, such as special access routes into buildings, and if additional help in evacuation is required. At a minimum, the materials shall include:

(1) What to do in the event of a carbon dioxide release,

(2) Symptoms of exposure to a carbon dioxide release,

(3) Recommendations for carbon dioxide monitors and air supply respirators.

(c) In addition to any other information required as part of an application to approve construction of a carbon dioxide pipeline, the owner or operator of the pipeline shall provide a risk analysis to the State Fire Marshal's Office, and State or local permitting agency. The State or local agency may consult with the State Fire Marshal's Office regarding the Risk Analysis prior to operation of the pipeline. The Risk Analysis shall include, at a minimum:

(1) Pipeline specific vapor dispersion and plume modeling that incorporates terrain, obstacles, buildings, time and spatial variations in wind that incorporate changes in direction and speed, ambient weather conditions, variations in the direction of a release, and concentrations and duration of carbon dioxide,

(2) Pipeline design specifications including diameter, thickness, shutoff valves,

(3) An owner or operator shall submit a redacted version of the risk analysis to the State Fire Marshal for posting to their website. Redactions shall be consistent with the Public Records Act or other applicable law. This information shall also be published to both the owner and operator's website and the State Fire Marshal's website. Complete versions of the risk analysis shall be provided to State and local emergency management agencies.

(d) Each year, the owner or operator of a pipeline shall offer at least 2 public training sessions for residents and local businesses along the route of the pipeline within 5 miles of the centerlines of the pipe. Each training shall be recorded and the most recent training shall be posted to the owner and operator's website, the State Fire Marshal's website,

and shall be provided to State and local emergency management agencies.

(e) Each year, the owner or operator of a pipeline shall offer a training session for medical personnel along the route of the pipeline within 5 miles of the centerline of the pipe. Each training shall be recorded and the most recent training shall be posted to the owner and operator's website, the State Fire Marshal's website, and shall be provided to State and local emergency management agencies.

(f) Every 5 years, the owners and operators are required to review and, if necessary, revise required trainings, risk analysis, pipeline design, emergency preparedness materials, under this Section to incorporate best practices, technologies, and developments.

(g) Should a pipeline failure occur, that pipeline shall remain non-operational until an investigation is completed that determines the origin and cause of the failure. The State Fire Marshal, in consultation with appropriate State, Federal, and local agencies, shall determine if or when a pipeline may resume operations.

§ 2179. Operations and maintenance.

Regulations to be developed to implement operation and maintenance requirements:

(a) No operator may operate or maintain its CO2 pipeline systems at a level of safety lower than that required by this article and the procedures it is required to establish under...

(b) No operator may operate any part of a CO2 pipeline unless it was designed and constructed by this article.

(c) Odorant requirements…

(d) Carbon dioxide contaminants…

(e) Abnormal operations…

§ 2179.1 Signs.

(a) Each operator must maintain signs visible to the public around each pump station, compressor station. Each sign must contain the name of the operator and a telephone number (including area code) where the operator can be reached at all times.

§ 2179.2 Security of facilities.

(a) Each operator must provide protection for each pump station, compressor station, and

breakout tank area, and other exposed facility (such as scraper traps) from vandalism and unauthorized entry.

§ 2179.3 Smoking or open flames.

(a) Each operator must prohibit smoking and open flames in each pump station area, compressor station area, and each breakout tank area where there is a possibility of the leakage of a flammable hazardous liquid or of the presence of flammable vapors.

§ 2180. Inspections and testing.

(a) Inspections of vapor detection, alarm systems, and safety devices.

(1) Each operator shall inspect and test each fixed vapor detection, alarm system, and safety device required under § 2204.3 at least once per calendar year, but at intervals not exceeding 15 months, to determine that it is functioning properly.

(2) Each inspection and test must be under conditions approximating actual operations and include individual components of the system and the entire system.

Regulations to be developed to implement inspections of pipeline right-of-way, crossing under navigable waterways, and land movement that may impact a pipeline:

(b) Inspection of rights-of-way and crossings under navigable waters.

(1) Each operator must, at intervals not exceeding 3 weeks, but at least 26 times each calendar year, inspect the surface conditions on and adjacent to each pipeline right-of-way for indications of leakage, construction activity, geologic hazards, reduced depth of cover, and other factors that may affect pipeline integrity, safety, and operation. Methods of inspection include walking, driving, flying or other appropriate means of traversing and inspecting the right-of-way.

(2) Except for offshore pipelines, each operator shall, at intervals not exceeding 5 years, inspect each crossing under a navigable waterway to determine the condition of the crossing.

(3) Whenever an operator observes an indication of geologic hazards on or adjacent to a pipeline right-of-way, the operator must perform additional inspections and evaluations, determine the extent of the geologic hazards and the impact of those hazards on the pipeline, and take remedial action, according to the requirements of § 195.401(b), if necessary.

(4) Whenever an operator observes an indication that the depth of cover over a buried pipeline is less than that required by § 195.248, the operator must perform additional

inspections and evaluations, determine the extent of the reduced depth of cover and the impact of the reduced depth of cover over the buried pipeline, and take remedial action, according to the requirements of § 195.401(b), if necessary.

(c) Land movement…

(d) Records of additional inspections, evaluations, determinations of need for remedial action, and remedial actions performed under paragraphs (c) and (d) of this section must be maintained for the life of the pipeline.

§ 2181. Internal corrosion control.

(a) Carbon dioxide pipeline monitoring and mitigation. Each operator of a pipeline transporting carbon dioxide must develop and implement a monitoring and mitigation program to mitigate the corrosive effects of the combined constituents in the product stream, as necessary. Potential corrosion-affecting constituents include, but are not limited to, microbes, H_2O (water), O_2 (oxygen), CH_4 (methane), H_2S (hydrogen sulfide), CO (carbon monoxide), SOx (sulfur oxides), and NOx (nitrogen oxides). An operator must evaluate the individual and combined effects of the applicable corrosion- affecting constituents in the product stream, at the operating temperatures and pressures of the pipeline, on the internal corrosion of the pipe and implement mitigation measures, as necessary. The monitoring and mitigation program must include:

(1) The use of quality monitoring methods at points where carbon dioxide containing corrosion-affecting constituents enters the pipeline to determine the presence and quantity of corrosion-affecting constituents.

(2) Technology to mitigate the corrosion-affecting constituents, which may include product sampling, inhibitor injections, in-line cleaning pigging, separators, or other technology that mitigates potentially corrosive effects. The operator must use technology to:

(i) Allow no free water and otherwise limit water to 50 ppm by volume of total product in any phase.

(ii) Limit hydrogen sulfide (H_2S) to 20 ppm by volume of total product in any phase.

(3) An evaluation at least four times per calendar year, at intervals not to exceed 4 ½ months, to ensure that corrosion-affecting constituents are effectively monitored and mitigated.

(4) An evaluation and review of the monitoring and mitigation program at least once each calendar year, at intervals not to exceed 15 months, updating and adjusting the program based on the results of that evaluation and review as necessary.

§ 2182. Notifications.

(a) Notifications to the OSFM shall be made via email to pipelinenotification@fire.ca.gov for the following:

§ 2183. Timing for Compliance.

(a) No later than January 1, [XXXX], an operator of a pipeline shall prepare and follow a written ILI program that contains all the elements described in this Article.

§ 2184. Record Retention.

(a) An operator shall retain for the life of the pipeline and components, records that demonstrate compliance with the requirements of this Article. At minimum, the following records shall be retained for the useful life of the intrastate pipeline:

(1) The physical characteristics of the pipeline, including diameter, yield strength, ultimate tensile strength, wall thickness, seam type, and chemical composition of materials.

(2) Tests, inspections, and attributes required by the manufacturing specifications applicable at the time the pipe and components were manufactured or installed.

(3) Records demonstrating compliance with § 2204.

§ 2185. Intrastate, Interstate, And Other Non-Jurisdictional Pipelines.

(a) Should an interstate pipeline or other pipeline that is not currently under the jurisdiction of the State Fire Marshal, become reclassified as an intrastate pipeline or become jurisdictional to the State Fire Marshal, that pipeline shall be subject to all the requirements of this Article.

(b) Operators will have 12-months from the time the pipeline became jurisdictional to the State Fire Marshal to conform to the requirements of this Article.

§ 2186. Enforcement.

The State Fire Marshal may take enforcement action for violations of this Article consistent with authority found in Government Code Sections 51010 et seq.