

**1100 SERIES
FLOWLINE REGULATIONS**

1101. REGISTRATION REQUIREMENTS

1101.a. Flowline and Crude Oil Transfer Line Statuses.

- (1) Pre-Commissioned Status means a constructed flowline or crude oil transfer line that:
 - A. Has not been connected or opened to sources of oil, condensate, produced water, or natural gas;
 - B. Is isolated from active status assets;
 - C. Does not contain oil, condensate, produced water, or natural gas; and
 - D. Is OOSLAT.
- (2) Active Status means a flowline or crude oil transfer line that is connected or open to sources of oil, condensate, produced water, or natural gas or is not in the pre-commissioned, out-of-service, or abandoned status, or contains these products.
- (3) Out-of-Service Status means a flowline or crude oil transfer line that is associated with an inactive well or the operator has ceased normal operations. For an out of service line, the operator must:
 - A. Isolate or disconnect it from sources of oil, condensate, produced water, or natural gas;
 - B. Evacuate all hydrocarbons and produced water to ensure the line is safe and inert and depressurize the line; and
 - C. apply OOSLAT.
- (4) Abandoned Status means a flowline or crude oil transfer line that has been permanently removed from service in accordance with Rule 1105.

1101.b. Off-Location Flowline Registration.

- (1) An operator must register every off-location flowline either individually or as part of a flowline system. An operator may register individual off-location flowlines or a flowline system by submitting a Flowline Report, Form 44, to the Director within 90 days after the flowline or flowline system is placed in active status. An off-location flowline registered as part of a produced water transfer system is not subject to this requirement.
- (2) Registration Requirements. For off-location flowlines registered pursuant to this section, operators must include the following information:
 - A. Geographic Information System (GIS) data that includes the flowline alignment and the following attributes: fluid type, pipe material type, and pipe size. GIS data must be submitted in the North American Datum of 1983 (NAD 83) and in a format approved by the Director;
 - B. Bedding materials used in construction;

- C. Pipe material;
 - D. Maximum flowline diameter;
 - E. Fluids that will be transferred;
 - F. The maximum anticipated operating pressure, testing pressure, test date and chart of successful pressure test;
 - G. Identify and describe the starting and ending oil and gas locations;
 - H. Description of corrosion protection;
 - I. Description of the integrity management system utilized in accordance with Rule 1104.f.; and
 - J. Description of the construction method used for public by-ways, road crossings, sensitive wildlife habitats, sensitive areas, and natural and manmade watercourses (i.e., open trench, bored and cased, or bored only), if applicable.
- (3) For off-location flowlines in existence prior to May 1, 2018, and already registered with the Commission, operators must submit, on or before December 1, 2020, a Flowline Report, Form 44, that includes:
- A. A description of the corrosion protection;
 - B. A description of the integrity management system utilized in accordance with Rule 1104.f.; and
 - C. Geographic Information System (GIS) data that includes the flowline alignment and the following attributes: fluid type, pipe material type, and pipe size. GIS data must be submitted in the North American Datum of 1983 (NAD 83) and in a format approved by the Director. The GIS data for these off-location flowlines must be the most accurate data possible without using invasive methods and a minimum horizontal positional accuracy of +/- 25 feet.
- (4) Within 90 days of modifying the alignment of a registered off-location flowline, the operator must report the change to the Director by submitting a Flowline Report, Form 44.
- (5) If a document is executed after May 1, 2018, that grants a right of access or easement to locate an off-location flowline on lands, then either the document itself or a memorandum or notice of such document must be recorded by the operator in the office of the county clerk and recorder of the county where the lands are located. If the document contains a legal description or map of the access or easement, then the memorandum or notice must include the legal description or map. Upon the surface owner's request, the operator shall provide a copy of the recorded document to the surface owner.

1101.c. Domestic Tap Registration.

- (1) Within 90-days of installation or discovery of a domestic tap connected to the operator's flowline, an operator must submit a Flowline Report, Form 44, to the Director to register the tap. The registration must include the latitude and longitude of the flowline or wellhead connection for the domestic tap and the street address or the latitude and longitude of the point of delivery.

- (2) For domestic taps installed after May 1, 2018, an operator must register the domestic tap pursuant to subpart (1) and notify the domestic tap owner in writing that the domestic tap must:
 - A. Be locatable by a tracer line or location device placed adjacent to or in the trench of the domestic tap to facilitate locating it, and a tracer wire or metallic device for locating must be resistant to corrosion damage;
 - B. Be installed by a licensed plumber;
 - C. Have properly-sized regulators at the point the tap connects to the operator's flowline and at the point the tap delivers gas to the dwelling or structure where the gas is utilized;
 - D. Include all necessary piping to accommodate appropriate odorization and equipment to control vapor content and gas utilization metering;
 - E. Be installed using materials designed for gas service and appropriate cover and bedding material in accordance with industry standards; and
 - F. Have markers that are installed and maintained at the point the domestic tap connects to the operator's flowline and at the point it delivers gas to the dwelling or structure where the gas is utilized consistent with Rule 1102.g.
- (3) An operator must supply odorant to the domestic tap owner at the time of installation until abandonment of the domestic tap.
- (4) Within 30 days of realigning, abandoning, discovering, or receiving notification that a registered domestic tap has been re-aligned or abandoned, the operator must report the change to the Director by submitting a Flowline Report, Form 44.

1101.d. Crude Oil Transfer Line and Produced Water Transfer System Registration.

- (1) **Registration.** At least 10 days before beginning construction of a crude oil transfer line or produced water transfer system, an operator must register it by submitting a Flowline Report, Form 44, to the Director. A produced water transfer system registered as part of a flowline system is not subject to this requirement. An operator may register multiple crude oil transfer lines using a single Form 44 to register those lines as a system.

For a crude oil transfer line or produced water transfer system constructed before May 1, 2018, and already registered with the Commission, operators must submit:

- A. Geographic Information System (GIS) data as required by (2)A., below, on or before December 1, 2020; and
 - B. Update any information required by (2)B., below, to the extent such information becomes known by the operator or can be acquired from such relevant records in the possession of the operator or its immediate predecessor in interest.
- (2) **As-built Specifications.** For a crude oil transfer line or produced water transfer system, the operator must submit a Flowline Report, Form 44, within 90 days of placing it into active status to include the following information:

- A.** Geographic Information System (GIS) data that includes the flowline or crude oil transfer line alignment, isolation valves, and the following attributes: fluid type, pipe material type, and pipe size. GIS data shall be submitted in the North American Datum of 1983 (NAD 83) and in a format approved by the Director;
 - B.** Specifications:
 - i.** Bedding materials used in construction;
 - ii.** Fluids that will be transferred;
 - iii.** The maximum anticipated operating pressure, testing pressure, test date, and chart of successful pressure test;
 - iv.** The pipe description (i.e., maximum size, grade, wall thickness, coating, standard dimension ratio, and material);
 - v.** The burial depth of the crude oil transfer line or produced water transfer system;
 - vi.** Description of corrosion protection;
 - vii.** Description of the integrity management system utilized in accordance with Rule 1104.f.;
 - viii.** Description of the construction method used for public by-ways, road crossings, sensitive wildlife habitats, sensitive areas and natural and manmade watercourses (i.e., open trench, bored and cased, or bored only); and
 - ix.** Copy of the operator's crude oil leak protection and monitoring plan prepared in accordance with 1104.g. If an operator has previously filed with the Director a current copy of its leak protection and monitoring plan it may cross reference the oil and gas facility or location for which the leak protection and monitoring plan was previously filed with reference to the API number, facility identification number, or COGCC document number.
 - C.** An affidavit of completion stating the operator designed and installed the crude oil transfer line or produced water transfer system in compliance with the 1100 Series rules.
- (3)** Within 90 days of modifying the alignment of a registered crude oil transfer line, the operator must report the change to the Director by submitting a Flowline Report, Form 44.
- (4)** For produced water transfer systems that have had system alignment changes during the preceding year, an operator must submit a Flowline Report, Form 44, by May 1st of each year to report the new alignment.
- (5)** If a document is executed after May 1, 2018, that grants a right of access or easement to locate a crude oil transfer line or produced water system on lands, then either the document itself or a memorandum or notice of such document must be recorded by the operator in the office of the county clerk and recorder of the county where the lands are located. If the document contains a legal description or map of the access or easement, then the memorandum or notice must include the legal description or map. Upon the surface owner's request, the operator shall provide a copy of the recorded document to the surface owner.

1101.e. Disclosure of Form 44 Data.

- (1) The Director will make Geographic Information System (GIS) data for off-location flowlines, crude oil transfer lines, and produced water transfer systems available through a publicly accessible online map viewer. Line attributes available to the public through the online map viewer will include the spatial location, operator, fluid type, pipe material type, and pipe size. Online map viewer data only will be available at scales greater than or equal to 1:6,000. Any person may view spatial data at scales less than 1:6,000 for an individual parcel at the Commission's office.
- (2) Upon request from a local governmental designee(s), and subject to executing a confidentiality agreement and the provisions of the Colorado Open Records Act, the Commission will provide to the local government all Geographic Information System (GIS) data submitted through Flowline Reports, Form 44s, for all off-location flowlines, crude oil transfer lines and produced water transfer systems. The local government may only reproduce or publish data that the Commission makes publicly available through its website. A local government may share more specific data in person than that which the Commission makes publicly available, but the information must be treated as confidential and may not be reproduced or published.
- (3) Except as provided in parts (1) and (2), above, the Commission will keep all such Geographic Information System (GIS) data confidential to the extent allowed by the Colorado Open Records Act.

1102. FLOWLINE AND CRUDE OIL TRANSFER LINE REQUIREMENTS

1102.a. Material. Materials for pipe and pipe components must be:

- (1) Able to maintain the structural integrity of the flowline or crude oil transfer line under anticipated operating temperature, pressure, and other operating conditions; and
- (2) Compatible with the substances to be transported.

1102.b. Applicable Technical Standards. Each component of a flowline or crude oil transfer line installed or repaired must meet one of the following standards appropriate for the component:

- (1) American Society of Mechanical Engineers (ASME), Pipeline Transportation Systems for Liquids and Slurries, 2016 Edition (ASME B31.4-2016), and no later editions of the standard. ASME B31.4-2016 is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. Additionally, ASME B31.4-2016 may be examined at any state publications depository library and is available to purchase from the ASME. The ASME can be contacted at Two Park Avenue, New York, NY 10016-5990, 1-800-843-2763;
- (2) ASME Gas Transmission and Distribution Piping Systems, 2016 Edition (ASME B31.8-2016), and no later editions of the standard. ASME B31.8-2016 is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. Additionally, ASME B31.8-2016 may be examined at any state publications depository library and is available to purchase from the ASME. The ASME can be contacted at Two Park Avenue, New York, NY 10016-5990, 1-800-843-2763;

- (3) ASME Process Piping, 2016 Edition (ASME 31.3-2016), and no later editions of the standard. ASME 31.3-2016 is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. Additionally, ASME 31.3-2016 may be examined at any state publications depository library and is available to purchase from the ASME. The ASME can be contacted at Two Park Avenue, New York, NY 10016-5990, 1-800-843-2763;
- (4) API Specification 15S, Spoolable Reinforced Plastic Line Pipe, Second Edition, March 2016 (API Specification 15S), and no later editions of the standard. API Specification 15S is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. In addition, API Specification 15S may be examined at any state publications depository library and is available from API at 1220 L Street, NW Washington, DC 20005-4070, 1-202-682-8000;
- (5) API RP 15TL4 (R2018) Recommended Practice for Care and Use of Fiberglass Tubulars, Second Edition. March 1999 together with API Specification 15HR, High-pressure Fiberglass Line Pipe, Fourth Edition, February 2016 (API Specification 15HR), and no later editions of the standards. API RP 15TL4 and API Specification 15HR are available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. In addition, API RP 15TL4 and API Specification 15HR may be examined at any state publications depository library and are available from API at 1220 L Street, NW Washington, DC 20005-4070, 1-202-682-8000;
- (6) API RP 15TL4 (R2018) Recommended Practice for Care and Use of Fiberglass Tubulars, Second Edition, March 1999, together with API Specification 15LR (R2013), Low Pressure Fiberglass Line Pipe and Fittings, Seventh Edition, August 2001 (API Specification 15LR), and no later editions of the standards. API RP 15TL4 and API Specification 15LR are available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. In addition, API RP 15TL4 and API Specification 15LR may be examined at any state publications depository library and are available from API at 1220 L Street, NW Washington, DC 20005-4070, 1-202-682-8000; or
- (7) ASME "Repair of Pressure Equipment and Piping" (ASME PCC-2-2018) and no later editions of the standard. The ASME standard is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. Additionally, the standard may be examined at any state publications depository library. The ASME standard is available to purchase from ASME at Two Park Avenue, New York, NY 10016-5990, 1-800-843-2763.

1102.c. Design. Each component of a flowline or crude oil transfer line must be designed to:

- (1) Prevent failure by minimizing internal or external corrosion and the effects of transported fluids;
- (2) Withstand maximum anticipated operating pressures and other internal loadings without impairment;
- (3) Withstand anticipated external pressures and loads that will be imposed on the pipe after installation;
- (4) Allow for line maintenance, periodic line cleaning, and integrity testing; and

- (5) Have adequate controls and protective equipment to prevent it from operating above the maximum operating pressure.

1102.d. Installation.

- (1) Installation crews must be trained in flowline or crude oil transfer line installation practices for which they are tasked to perform.
- (2) All workers performing welding on steel flowline or steel crude oil transfer lines in pressure service, must be certified in accordance with:
 - A. API Standard 1104, Welding of Pipelines and Related Facilities, Twenty First Edition, September 2013 and no later editions of the standard. API Standard 1104 is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. In addition, API Standard 1104 may be examined at any state publications depository library and is available from API at 1220 L Street, NW Washington, DC 20005-4070, 1-202-682-8000; or
 - B. ASME BPV Code 2017 Section IX - Welding, Brazing and Fusing Qualification and no later editions of the code. The Section is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. In addition, the ASME BPV Code may be examined at any state publications depository library The ASME BPV Code is available to purchase from the ASME at Two Park Avenue, New York, NY 10016-5990, 1-800-843-2763.
- (3) Non-destructive testing of welds for newly constructed steel off-location flowlines or steel crude oil transfer lines must be done in accordance with one of the following:
 - A. Those standards established by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration pursuant to 49 C.F.R. § 192.243 and 49 C.F.R. § 195.234, in existence as of the date of this regulation, and no later amendments. 49 C.F.R. § 192.243 and 49 C.F.R. § 195.234 are available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. Additionally, 49 C.F.R. § 192.243 and 49 C.F.R. § 195.234 may be found at <https://www.phmsa.dot.gov>; or
 - B. One of the standards set forth in Rule 1102.b. or Rule 1102.d.(2)A. and B., above.
- (4) Non-destructive testing is not required for repairs of existing steel off-location flowlines or steel crude oil transfer lines.
- (5) No pipe or other component may be installed unless it has been visually inspected at the site of installation to ensure that it is not damaged.
- (6) Off-location flowlines and crude oil transfer lines must be locatable by a tracer line or location device placed adjacent to or in the trench of a buried nonmetallic flowline or crude oil transfer line. Any installed tracer wire or metallic device for locating must be resistant to corrosion damage. Caution tape must be placed in the trench above the line and a minimum of one foot below grade. Metallic locatable caution tape may be used to satisfy both the tracer and caution tape requirements, if designed to be a location device.

- (7) Flowlines or crude oil transfer lines must be installed in a manner that minimizes interference with agriculture, land under construction, structures, road and utility construction, wildlife resources, the introduction of secondary stresses, and the possibility of damage to the pipe.
- (8) The pipe must be handled in a manner that minimizes stress and avoids physical damage to the pipe during stringing, joining, or lowering in. During the lowering in process the pipe string must be properly supported so as not to induce excess stresses on the pipe or the pipe joints or cause weakening or damage to the outer surface of the pipe.
- (9) Flowlines or crude oil transfer lines that cross a municipality, county, or state graded road must be bored unless the responsible governing agency specifically permits the operator to open cut the road.
- (10) Flowlines and crude oil transfer lines must be installed pursuant to the manufacturer's specifications. In the absence of applicable manufacturer's specifications, the following requirements apply:
 - A. Flowline or crude oil transfer line trenches must be constructed to allow the line to rest on undisturbed native soil and provide continuous support along the length of the pipe;
 - B. Trench bottoms must be free of rocks greater than two inches in diameter, debris, trash, and other foreign material not required for flowline or crude oil transfer line installation; and
 - C. Over excavated trench bottoms must be backfilled with appropriate material and compacted prior to installation of the pipe to provide continuous support along the length of the pipe.
- (11) The width of the trench must provide adequate clearance on each side of the pipe. Trench walls must be excavated to ensure minimal sloughing of sidewall material into the trench. Subsoil from the excavated trench must be stockpiled separately from previously stripped topsoil.
- (12) A flowline or crude oil transfer line trench must be backfilled in a manner that provides firm support under the pipe and prevents damage to the pipe and pipe coating from equipment or from the backfill material. Sufficient backfill material must be placed in the pipe springline to provide long-term support for the pipe. Backfill material that will be within two feet of the pipe must be free of rocks greater than two inches in diameter and foreign debris. Backfilling material must be compacted as appropriate during placement in a manner that provides support for the pipe and reduces the potential for damage to the pipe and pipe joints.
- (13) Flowlines and crude oil transfer lines that traverse sensitive wildlife habitats or sensitive areas, such as wetlands, streams, or other surface waterbodies, must be installed in a manner that minimizes impacts to these areas.

1102.e. Cover for Subsurface Flowlines and Crude Oil Transfer Lines.

- (1) All installed flowlines and crude oil transfer lines must have cover sufficient to protect them from damage. On cropland, all flowlines must have a minimum cover of three (3) feet.

- (2) Where an underground structure, geologic, or other uncontrollable condition prevents a flowline or crude oil transfer line from being installed with minimum cover, or when there is a written agreement between the surface owner and the operator specifying flowline cover depth of less than minimum cover, it may be installed with less than minimum cover or above-ground, if:
 - A. The exposed pipe and components are designed to withstand anticipated conditions;
 - B. The operator installs it in compliance with manufacturer's specifications; and
 - C. The operator installs it in a manner to withstand anticipated external loads.
- (3) Operators must protect above-ground flowlines or crude oil transfer lines, or associated above-ground equipment, from vehicular traffic by installing the lines a safe distance from public roads or installing barricades.

1102.f. Top Soil Management and Reclamation.

- (1) Site preparation and stabilization must be performed in accordance with Rule 1002 for trenches greater than eight inches in width. This requirement to segregate and backfill topsoil does not apply to trenches which are eight inches or less in width. Operator must make reasonable efforts to install flowlines or crude oil transfer lines parallel to crop irrigation rows on flood irrigated land.
- (2) All trenches must be maintained in order to correct subsidence and reasonably minimize erosion.
- (3) Interim and final reclamation, including revegetation, must be performed in accordance with the applicable 1000 Series rules.

1102.g. Marking.

- (1) Where crossing public rights-of-way or utility easement crossings, an operator must install and maintain markers that identify the location of flowlines or crude oil transfer lines. These markers must be placed in a manner to reduce the possibility of damage or interference with surface use but need not be placed where impracticable or if the landowner does not grant permission.
- (2) Operators must install a marker consistent with the version of 49 C.F.R. § 195.410 in existence as of the date of this regulation and does not include later amendments, or the marker must include the following language:

"Warning", "Caution" or "Danger" followed by the words "gas or petroleum (or name of gas or fluid transported) in the flowline (or crude oil transfer line)" along with the name of the operator and the telephone number where the operator can be reached at all times. The letters must be legible, written on a background of sharply contrasting color and on each side with at least one (1) inch high with one-quarter (¼) inch stroke.

49 C.F.R. § 195.410 is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. Additionally, the regulation may be examined at any state publications depository library or found at <https://www.phmsa.dot.gov>.

1102.h. Inspection. Before placing a newly constructed line into active status, a crude oil transfer line or off-location flowline must be inspected by a third-party inspector who is trained in the installation of crude oil transfer lines or off-location flowlines.

- (1) A line constructed of welded steel pipe must be inspected by a third-party inspector who is: a Professional Engineer registered with the State of Colorado, working under the supervision of a Professional Engineer registered with the State of Colorado, a National Welding Inspection School Certified Pipeline Welding Inspector (CPWI), an American Welding Society Certified Welding Inspector (CWI), a National Welding Inspection School Certified Hydrotest Inspector, a National Association of Corrosion Engineers Certified Coating Inspector (Level 1 or higher), or an API Certified Pipeline Inspector.
- (2) A line constructed of materials other than welded steel pipe must be inspected by a third-party inspector who is: a Professional Engineer registered with the State of Colorado, working under the supervision of a Professional Engineer registered with the State of Colorado, or who has been trained on proper installation techniques by the pipe manufacturer or their representative, if available.
- (3) The operator must maintain inspection records, including at a minimum:
 - A. The third-party inspector's certification that the crude oil transfer line was installed as prescribed by the manufacturer's specifications and in accordance with the requirements of the 1100 Series rules; and
 - B. The third-party inspector's certification qualifications.

1102.i. Maintenance.

- (1) Each operator must take reasonable actions to prevent failures and leakage, and minimize corrosion of flowlines and crude oil transfer lines.
- (2) Whenever an operator discovers any condition that could adversely affect the safe and proper operation of a flowline or crude oil transfer line, the operator must correct the condition as soon as possible. However, if the condition presents an immediate hazard to persons or property, the operator may not operate the affected segment until the operator has corrected the condition.
- (3) If the flowline or crude oil transfer line lacks integrity, the operator must immediately investigate, report, and remediate any Spills or Releases in accordance with the 900 Series rules.
- (4) While conducting maintenance, an operator must take reasonable precautions to prevent unintentional releases of pressure or fluid.

1102.j. Repair.

- (1) Each operator must make repairs in a safe manner that prevents injury to persons and damage to equipment and property.
- (2) An operator may not use any pipe, valve, or fitting to repair a flowline or crude oil transfer line unless the component meets the installation requirements of the 1100 Series rules for the repaired segment. For a flowline or crude oil transfer line installed prior to May 1, 2018 that undergoes a major modification or change in status after May 1, 2018, the segment repaired must satisfy all applicable requirements of the 1100 Series rules before an operator can return the flowline or crude oil transfer line to active status.

- (3) An operator may not install or operate any pipe, valve, or fitting for replacement or repair of a flowline or crude oil transfer line unless it is designed to the maximum anticipated operating pressure.
- (4) An operator must verify the integrity of any replaced or repaired segment of flowline or crude oil transfer line before returning it to use.
- (5) An operator must conduct a repair in accordance with the manufacturer's specifications or an applicable technical standard identified in Rule 1102.b.
- (6) Each segment of pipe, valve, or fitting that is found to leak or is unsafe must be replaced or repaired before returning it to service.
- (7) While conducting a repair, an operator must take reasonable precautions to prevent unintentional releases of pressure or fluid.

1102.k. Operating requirements.

- (1) No flowline or crude oil transfer line may be in active status and operated until it has demonstrated compliance with Rule 1104, Integrity Management.
- (2) The maximum operating pressure for a flowline or crude oil transfer line may not exceed the manufacturer's specifications of the pipe or the manufacturer's specifications of any other component of it, whichever is less.

1102.l. Corrosion control.

- (1) All coated pipe for underground service must be electronically inspected prior to installation using coating deficiency (i.e. scratch, bubble, and "holiday") detectors to check for any faults not observable by visual examination. The detector must operate in accordance with manufacturer's specifications and at a voltage level appropriate for the electrical characteristics of the flowline or crude oil transfer line being tested. During installation all joints, fittings, and tie-ins must be coated with materials compatible with the coatings on the pipe. Coating materials must:
 - A. Be designed to mitigate corrosion of the buried pipe;
 - B. Have sufficient adhesion to the metal surface to prevent under-film migration of moisture;
 - C. Be sufficiently ductile to resist cracking;
 - D. Have enough strength to resist damage due to handling and soil stress;
 - E. Support any supplemental cathodic protection; and
 - F. If the coating is an insulating type, have low moisture absorption and provide high electrical resistance.
- (2) Cathodic protection systems must meet or exceed the minimum criteria set forth in the National Association of Corrosion Engineers (NACE) standard practice SP0169-2007 (formerly RP0169), Control of External Corrosion on Underground or Submerged Metallic Piping Systems, 2007 Edition (NACE SP0169-2007), and no later editions of the standard. NACE SP0169-2007 is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. Additionally, NACE SP0169-2007 may be examined at any state publications depository library and is available to purchase from the NACE. The NACE can be contacted at 15835 Park Ten Place, Houston, Texas 77084, 1-281-228-6200.

- (3) An operator must take prompt remedial action to correct any abnormal internal corrosion. Remedial action may include increased pigging, using corrosion inhibitors, coating the internal flowline or crude oil transfer line (e.g. an epoxy paint or other plastic liner), or a combination of these actions.

1102.m. Record Keeping. An operator must maintain records of flowline or crude oil transfer line size, route, materials, maximum anticipated operating pressure, pressure or other integrity test results, inspections, repairs, integrity management documentation, applicable technical standard(s) used, design, installation, cover for subsurface flowlines and crude oil transfer lines, top soil management and reclamation, marking, maintenance and corrosion control, until the operator submits abandonment information pursuant to Rule 1105.f. If an operator relies upon manufacturer's specifications, it is the operator's responsibility to ensure the appropriate specifications are available upon request by the Commission. These records are to be transferred with a change of operator.

1102.n. One Call participation. Every operator with underground facilities, as defined in §9-1.5-102(7), C.R.S., including wells and below-ground flowlines and crude oil transfer lines, must become a Tier One member of the Utility Notification Center of Colorado (CO 811) and participate in Colorado's One Call notification system, the requirements of which are established by §9-1.5-101., C.R.S. *et seq.*

- (1) An operator with underground facilities must confirm its CO 811 membership when submitting an Operator Registration, Form 1, Change of Operator, Form 10, Gas Facility Registration, Form 12, or Flowline Report, Form 44.
- (2) An operator that does not have underground facilities is exempt from the CO 811 membership requirement.
- (3) Within 30 days of completing an asset purchase, a transfer, construction or relocation of a flowline or crude oil transfer line, an operator must update the operator's location information with CO 811.
- (4) An operator's registration with the Commission grants the Director permission to access information the operator submits to CO 811 about its oil and gas facilities.

1102.o. Requirements for shut-in or out of service off-location flowline or crude oil transfer line for inspection.

- (1) For an active status off-location flowline or crude oil transfer line that has been shut-in, meaning that the line contains fluids associated with oil and gas operations, but is not flowing fluids, for more than 90 days, the operator must:
 - A. Apply a tag out device to each riser associated with the line;
 - B. Continue to comply with the integrity management requirements of Rule 1104;
 - C. Pressure test the off-location flowline or crude oil transfer line in accordance with Rule 1104.h. before returning the line to operation; and
 - D. Not less than 48 hours prior to pressure testing, submit notice with a Field Operations Notice, Form 42 – Notice of Return to Service, to the Director of the scheduled date for the pressure test to allow the Commission to inspect during the pressure test.
- (2) For an off-location flowline or a crude oil transfer line that has been out of service for more than 90 days, the operator must:

- A. Within 120 days of applying OOSLAT, submit a Flowline Report, Form 44, to the Director identifying the off-location flowline or crude oil transfer line or segment thereof that has been taken out of service and the outcome of the most recent integrity management test.
- B. Pressure test the off-location flowline or crude oil transfer line in accordance with Rule 1104.h. before returning the line to active status; and
- C. Not less than 48 hours prior to pressure testing, submit notice with a Field Operations Notice, Form 42 – Notice of Return to Service, to the Director of the scheduled date for the pressure test to allow the Commission to inspect during the pressure test.

1103. FLOWLINE AND CRUDE OIL TRANSFER LINE VALVES

1103.a. Isolation valve repair and maintenance.

- (1) Operators must annually conduct one of the following maintenance operations on all isolation valves:
 - A. Perform a function test; or
 - B. Maintain the isolation valve in accordance with its manufacturer's specifications.
- (2) Operators must repair or replace isolation valves that are not fully operable.
- (3) On-location manifold, peripheral and process piping flowlines are exempt from the annual maintenance operations set forth in this section Rule 1103.a.(1).

1103.b. Any valve, flange, fitting or other component that is connected to a flowline or crude oil transfer line must have a manufacturer's specification rating that is equal to or greater than the maximum anticipated operating pressure.

1103.c. For all flowlines or crude oil transfer lines constructed after May 1, 2018, an isolation valve must be installed at each of the following locations before being placed into active status:

- (1) On the suction end and the discharge end of a pump station in a manner that permits isolation of the pump station equipment in the event of an emergency;
- (2) On each flowline or crude oil transfer line entering or leaving a breakout tank in a manner that permits isolation of the breakout tank from other facilities;
- (3) At locations along a flowline or crude oil transfer line that will minimize damage or pollution from accidental discharge of hydrocarbons or E&P Waste, as appropriate for the terrain in open country or for populated areas;
- (4) On each side of a flowline or crude oil transfer line crossing a Rule 317B Public Water System defined water supply or a waterbody that is more than 100 feet (30 meters) wide from high-water mark to high-water mark; and
- (5) On each side of a flowline or crude oil transfer line crossing a reservoir storing water for human consumption.

1103.d. Flowlines and crude oil transfer lines constructed before May 1, 2018, must be retrofitted with isolation valves at each of the locations identified in Rule 1103.c.(1)-(5) by October 31, 2019. On-location manifold, peripheral and process piping flowlines are exempt from the retrofit provisions set forth in this section 1103.d.

1103.e. Check Valve Installation Requirements.

- (1) Where an operator produces two or more wells through a common flowline, separator, or manifold, the operator must equip each flowline leading from a well to the common flowline, crude oil transfer line, separator, or manifold with a check valve or other comparable reverse flow prevention mechanism.
- (2) The check valve or other comparable reverse flow prevention mechanism must be installed to permit fluids to move from the well to the common flowline, crude oil transfer line, separator, or manifold and to prevent any fluid from entering the well through the flowline.
- (3) The operator must keep all check valves or other comparable reverse flow mechanisms in good working order.
- (4) Upon the Director's request, operators must test the operation of the check valve or other comparable reverse flow mechanism.
- (5) The requirements set forth in subsection (1) and (2) above, apply only to those check valves or comparable reverse flow mechanisms installed after May 1, 2018. Existing check valves or comparable reverse flow mechanisms must comply with subsection (3) and (4) above.

1104. INTEGRITY MANAGEMENT

1104.a. Initial Pressure Testing Requirements.

- (1) Within 90 days prior to placing any newly installed segment of flowline or crude oil transfer line into active status, an operator must test the line to at least maximum anticipated operating pressure and demonstrate integrity.
- (2) If an operator successfully completes an initial pressure test for an off-location flowline or crude oil transfer line, but does not place the line into active status within 90 days, the line may remain in pre-commissioned status and will not require an additional initial pressure test if:
 - A. The operator applied best practices to protect the line's integrity for the time between completing the successful initial pressure test and placing the line into active status; and
 - B. The operator submits a Field Operations Notice, Form 42 – Notice of Return to Service, to the Director of the scheduled date for placing the line into active status not less than 48 hours prior to placing the line into service.
- (3) In conducting tests, each operator must ensure that reasonable precautions are taken to protect its employees and the general public.
- (4) The operator may use a hydrostatic test or conduct the test using inert gas or wellhead pressure sources and well bore fluids, including gas, in accordance with one of the applicable standards set forth in Rule 1104.h.(1) below.

1104.b. Testing upon request. An operator will conduct an integrity test of any segment of flowline or crude oil transfer line at any time upon request of the Director.

1104.c. Integrity Management for Active Status Below-ground Dump Lines. An operator must verify integrity of below-ground dump lines by performing an annual static-head test and a monthly audio, visual, olfactory (AVO) detection survey of the entire line.

1104.d. Integrity Management for Active Status Above-ground On-location Flowlines. An operator must verify the integrity of above-ground on-location flowlines by performing a monthly audio, visual, olfactory (AVO) detection survey of the entire flowline.

1104.e. Integrity Management for Active Status Below-Ground On-location Flowlines.

- (1) For any below-ground on-location flowlines not subject to Rule 1104.c. or d., above, an operator must adhere to one of the following integrity management programs:
 - A. A pressure test to maximum anticipated operating pressure every three years;
 - B. Smart pigging conducted every three years;
 - C. Continuous pressure monitoring; or
 - D. Annual instrument monitoring conducted pursuant to Rule 1104.j.(2).
- (2) If an operator elects to use smart pigging to comply with this section, the smart pig must be able to measure flowline wall thickness, and measure for flowline defects that could affect integrity, including measurement of metal loss. If no Geographic Information System (GIS) data of the flowline exists, the smart pig will have GPS capabilities to the extent such capabilities do not materially compromise the ability of the smart pig to conduct the integrity testing required by this section.

1104.f. Integrity Management for Active Status Off-Location Flowlines and Crude Oil Transfer Lines.

- (1) For active status off-location flowlines and crude oil transfer lines, but not including off-location produced water flowlines, operators must adhere to one of the following integrity management programs:
 - A. An annual pressure test to maximum anticipated operating pressure;
 - B. Continuous pressure monitoring;
 - C. Smart pigging conducted every three years; or
 - D. Annual instrument monitoring conducted pursuant to Rule 1104.j.(2).
- (2) For active status off-location below-ground produced water flowlines, operators must adhere to one of the following integrity management programs:
 - A. An annual pressure test to maximum anticipated operating pressure;
 - B. Continuous pressure monitoring; or
 - C. Smart pigging conducted every three years.
- (3) For active status above-ground off-location produced water flowlines, operators may use any of the options listed in Rule 1104.f.(2), or monthly AVO inspections.

- (4) If an operator elects to use smart pigging to comply with this section, the smart pig must be able to measure flowline wall thickness, and measure for flowline defects that could affect integrity, including measurement of metal loss. If no geodatabase file of the flowline exists, the smart pig will have GPS capabilities to the extent such capabilities do not materially compromise the ability of the smart pig to conduct the integrity testing required by this section.

1104.g. Leak protection, detection, and monitoring.

- (1) All crude oil transfer line operators must prepare and file with the Director a leak protection and monitoring plan with their registration.
- (2) All crude oil transfer line operators must develop and maintain a plan to coordinate the assessment of all inflow and outflow data. The plan must provide for the assessment of inflow and outflow data between the production facility operator, the crude oil transfer line operator, and the operator at the point or points of disposal, storage, or sale. Upon discovery of a material data discrepancy, the discovering party is to notify all other appropriate parties and take action to determine the cause. The crude oil transfer line operator is to retain a record of all material data discrepancies.

1104.h. Pressure Test Requirements.

- (1) Initial Pressure Test.
 - A. Before putting an off-location flowline or crude oil transfer line into active status, the successful initial pressure test must be conducted for a minimum of four hours or in compliance with the manufacturer's specifications and in accordance with one of the following applicable standards.
 - i. American Society of Mechanical Engineers (ASME), Process Piping, 2016 Edition (ASME 31.3-2016) and no later edition;
 - ii. ASME Pipeline Transportation Systems for Liquids and Slurries, 2016 Edition (ASME B31.4-2016) and no later edition;
 - iii. ASME Gas Transmission and Distribution Piping Systems, 2016 Edition (ASME B31.8-2016) and no later edition;
 - iv. API Specification 15S, Spoolable Reinforced Plastic Line Pipe, Second Edition, March 2016 (API Specification 15S) and no later edition;
 - v. API RP 15TL4 (R2018) Recommended Practice for Care and Use of Fiberglass Tubulars, Second Edition, March 1999, together with API Specification 15HR, High-pressure Fiberglass Line Pipe, Fourth Edition, February 2016 (API Specification 15HR), and no later editions;
 - vi. API RP 1110, Recommended Practice for the Pressure Testing of Steel Pipelines for the Transportation of Gas, Petroleum Gas, Hazardous Liquids, Highly Volatile Liquids or Carbon Dioxide (6th Ed., February 1, 2013) (API RP 1110) and no later edition; or
 - vii. ASTM F2164-13, Standard Practice for Field Leak Testing of Polyethylene (PE) and Crosslinked Polyethylene (PEX) Pressure Piping Systems Using Hydrostatic Pressure, and no later edition, or manufacturer's specifications and must test the line to at least maximum anticipated operating pressure.

- B. The ASME, API and ASTM standards identified in A. above are available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. Additionally, the standards may be examined at any state publications depository library. The ASME standards are available to purchase from the ASME at Two Park Avenue, New York, NY 10016-5990, 1-800-843-2763. The API standard is available to purchase from the API at 1220 L Street, NW Washington, DC 20005-4070, 1-202-682-8000. The ASTM standard is available to purchase from the ASTM at ASTM International, West Conshohocken, PA, 19428-2959, 1-877-909-2786.
- C. Before putting an on-location flowline into active status, the initial pressure test must be conducted in compliance with the manufacturer's specifications or in accordance with one of the applicable standards identified in Rule 1104.h.(1)A.
- D. The initial pressure test can be hydrostatic or the test fluid can be the produced fluids of oil, condensate, produced water, or natural gas or inert gas in accordance with the applicable sections of the above-mentioned standards.
- E. A successful initial pressure test must demonstrate that the flowline or crude oil transfer line does not leak.

(2) **Annual and Triennial Pressure Testing Requirements.** For annual or triennial pressure tests conducted to meet the requirements of Rules 1104.e and 1104.f:

- A. A pressure test must test to at least the maximum operating pressure and run for at least 30 minutes once the fluid pressure has stabilized.
- B. The test can be hydrostatic or the test fluid can be the produced fluids of oil, produced water or natural gas.
- C. A successful test will demonstrate the flowline or crude oil transfer line does not leak, that pressure loss does not exceed 10%, and the fluid pressure is stable for the last five minutes of the pressure test.

1104.i. Continuous Pressure Monitoring Requirements. An operator's continuous pressure monitoring program must meet API RP 1175 "Pipeline Leak Detection Program Management" (2017), and no later editions of the standard, and ensure:

- (1) Pressure data are monitored continuously, i.e., 24 hours per day and 7 days a week, and the monitoring is sufficiently sophisticated to identify flowline or crude oil transfer line integrity or pressure anomalies;
- (2) Systems are capable of being shut-in for repairs immediately upon discovery of a suspected leak, either through automation or a documented, manual process;
- (3) The operator documents the continuous monitoring program, including suspected or identified integrity failures and how the operator will maintain and repair flowlines or crude oil transfer lines; and
- (4) The API RP 1175 is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. In addition, API RP 1175 may be examined at any state publications depository library and is available from API at 1220 L Street NW, Washington, DO 20005-4070, 1-202-682-8000.

1104.j. Audio, Visual and Olfactory (AVO) Detection Survey or Alternative Survey Requirements.

- (1) When performing an AVO detection survey, an operator must survey the entire flowline length using audio, visual and olfactory techniques to detect integrity failures, leaks, spills, or releases, or signs of a leak, spill, or release like stressed vegetation or soil discoloration.
- (2) Instrument Monitoring Method (IMM). Where the regulations permit, an operator also may conduct a survey using an instrument monitoring method capable of detecting integrity failures, leaks, spills or releases, or signs of a leak, spill or release.
- (3) For either survey method, an operator must document the date and time of the survey, the detection methodology and technology, if any, used and the name of the employee who conducted the survey.

1104.k. Integrity Failure Investigation.

- (1) If the integrity management program indicates that a flowline or crude oil transfer line has or has had an integrity failure, the operator must investigate the cause of the failure, investigate whether the failure resulted in a spill or release of liquids, produced water, or gas, and repair any failure as required by Rule 1102.j.
- (2) If the failure resulted in a spill or release of liquids, produced water or gas, the operator must comply with the 900 Series Rules.

1105. ABANDONMENT

1105.a. A flowline or crude oil transfer line remains subject to all of the requirements in Rules 1101 through 1104 until the operator completes all abandonment requirements set forth below.

1105.b. Upon removing a flowline or crude oil transfer line from use with the intent to abandon, an operator must immediately apply OOSLAT to the risers. OOSLAT must stay in place at all times during the process of abandoning the flowline or crude oil transfer line until the operator removes the riser.

1105.c. Isolation. When abandoning a flowline or crude oil transfer line, operators must permanently remove a flowline or crude oil transfer line from operation by physically separating it from all sources of fluids or pressure within the time frame set forth in Section 1004.a.

1105.d. Pre-abandonment notice requirements for flowline or crude oil transfer line for inspection. Operators must remove the flowline or crude oil transfer line and its risers, the riser associated with cathodic protection, and above-ground equipment, except where abandonment in place is less impactful as articulated in subparts (2) and (3).

- (1) For on-location flowlines, the operator must submit notice to the Director of the scheduled date for commencing abandonment with a Field Operations Notice, Form 42 – Abandonment of Flowlines no less than 30 days before the operator will commence abandonment.

- (2) If the off-location flowline or crude oil transfer line will be removed or abandoned in place pursuant to one of the following exceptions, the operator must submit notice to the Director of the scheduled date for commencing abandonment that includes appropriate documentation. The operator must submit the notice and appropriate documentation no less than 30 days before the operator will commence abandonment. The Director may review the notice, if necessary, to determine whether the proposed abandonment process is less impactful to public health, safety, welfare, the environment and wildlife resources. The Director's determination, if any, must be completed within 30 days of receiving the notice. Abandonment in place is allowed pursuant to the process in this section if:
- A. A surface owner agreement executed by a surface owner allows abandonment in place;
 - B. The line is subject to the jurisdiction of the federal government, and the relevant federal agency directs abandonment in place;
 - C. The flowline or crude oil transfer line is co-located with other active pipelines or utilities or is in a recorded right of way;
 - D. Removal of the flowline or crude oil transfer line would cause significant damage to natural resources, including wildlife resources, topsoil, or vegetation;
 - E. The flowline or crude oil transfer line is in a restricted surface occupancy area or sensitive wildlife habitat;
 - F. The flowline or crude oil transfer line or a segment of the line crosses or is within 30 feet of a public road, railroad, bike path, public right of way, utility corridor, or active utility or pipeline crossing;
 - G. The flowline or crude oil transfer line or a segment of the line crosses or is within 30 feet of or under a river, stream, lake, pond, reservoir, wetlands, watercourse, waterway, or spring; or
 - H. The operator demonstrates and quantifies that the removal of the flowline or crude oil transfer line will cause significant emissions of air pollutants.
- (3) An operator may request abandonment in place for off-location flowlines or crude oil transfer lines for reasons other than those articulated in section (2). The operator must request abandonment in place by submitting to the Director a Flowline Report, Form 44, no less than 30 days before the operator plans to commence abandonment. The Flowline Report must include documentation demonstrating that abandonment in place, considering any mitigation measures or best management practices, will be less impactful to public health, safety, welfare, the environment, and wildlife resources than removal. The Director may not approve the request for abandonment in place for the line or a portion thereof unless the Director finds that abandonment in place causes less impacts to public health, safety, welfare, the environment, and wildlife resources than removal.
- (4) Unless waived, the operator must provide notice to the surface owner and the relevant local government simultaneously with submitting notice to the Director pursuant to this Rule 1105.d. The local government or surface owner must provide their comments to the Director within 15 days of receipt, regarding the proposed abandonment's impacts to public health, safety, welfare, the environment, and wildlife resources.

1105.e. Abandonment in place requirements. For a flowline or crude oil transfer line abandoned in place, the operator must:

- (1). Evacuate the flowline or crude oil transfer line of any hydrocarbons or produced water to ensure the line is safe and inert;
- (2). Deplete the flowline or crude oil transfer line to atmospheric pressure;
- (3). Cut the flowline's or crude oil transfer line's risers to three (3) feet below grade or to the depth of the flowline or crude oil transfer line, whichever is shallower;
- (4). Seal the ends of the flowline or crude oil transfer line below grade;
- (5). Remove above-ground cathodic protection and equipment associated with the riser; and
- (6). Include pressure test results conducted in the prior 12 months as well as identification of any document numbers for a COGCC Spill/Release Report, Form 19, associated with the abandoned line with the Flowline Report, Form 44, submitted pursuant to Rule 1105.f.(2); and
- (7). For an off-location flowline or crude oil transfer line abandoned in place pursuant to Rule 1105.d.(2), the operator must submit documentation supporting the applicable reason for abandonment in place with the Flowline Report, Form 44, submitted pursuant to Rule 1105.f.(2).

1105.f. Abandonment Verification. Within 90 days of an operator completing abandonment requirements for a flowline or crude oil transfer line, an operator must submit:

- (1) A Field Operations Notice, Form 42 – Abandonment of Flowlines, to the Director for an on-location flowline. If the operator conducted a pressure test as part of the abandonment, a copy of the pressure test shall be submitted with the Report of Abandonment, Form 6 – Subsequent.
- (2) A Flowline Report, Form 44, to the Director for an off-location flowline or crude oil transfer line, which must include:
 - A. Geographic Information System (GIS) data that includes line alignment, if such GIS data has not been submitted to the Commission for the line;
 - B. An account of the manner in which the abandonment work was performed;
 - C. Copies of any pressure test results run as part of the abandonment shall be submitted with the Form 44 for off-location flowlines and crude oil transfer lines; and
 - D. If the line was abandoned in place, verification performed by a third party who:
 - i. Observed that the abandonment requirements of Rule 1105.e.(1)-(4) were met; and
 - ii. Is a Professional Engineer registered with the State of Colorado, working under the supervision of a Professional Engineer registered with the State of Colorado, or has specific training and experience abandoning lines in accordance with the requirements of Rule 1105.

1105.g. The Director will provide a Field Operations Notice, Form 42 – Abandonment of Flowlines, for an on-location flowline abandonment or a Flowline Report, Form 44, filed pursuant to Rule 1105.f. for an off-location flowline or crude oil transfer line abandonment to the appropriate Local Governmental Designee and CO 811.