

Appendix B
Kinder Morgan Operator Qualification Program
List of Covered Tasks – Hazardous Liquid Pipelines – Part 195
revised 10/01/09

No.	Covered Tasks	Requalification Frequency	Initial Qualification Method	Subsequent Re-qualification Method	Span of Control	DOT Part 195 reference
101.01	Abnormal conditions – outside of control room	3 yrs.	Knowledge Test	Knowledge Test	N/A	402a, 402e, 403
101.02	Abnormal conditions – inside of control room	3 yrs.	Knowledge Test	Knowledge Test	N/A	402a, 402e, 403
102.01	Measure structure-to-soil potentials	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	573a1
102.02	Advanced cathodic testing	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	573a2, 571, 575, 577
102.03	Active Corrosion/Microbiological Corrosion (MIC) Testing	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	573a2
102.04	Maintain cathodic test leads (ETSS)	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	567
102.05	Read rectifier	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	573c
102.06	Use of current interrupters on rectifiers	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	573a2
102.07	Adjust rectifier	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	573c, 573e
102.08	Maintain rectifier	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	573c, 573e
102.09	Atmospheric corrosion – inspection of coatings	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	583
102.10	Atmospheric corrosion – surface preparation	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:5	581
102.11	Atmospheric corrosion – application of coatings	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:5	581
102.12	reserved for future use					
102.13	External coatings on buried or submerged components - application and repair	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:5	559, 561

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102.14	Cathodic protection remediation	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	563, 565, 576e, 575, 577
102.15	Internal corrosion – control injection rate	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	579
102.16	Internal corrosion – monitor injection rate	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	579
102.17	Internal corrosion – insertion and removal of probes and coupons	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	579
102.18	Internal corrosion – monitoring probes	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	579b
102.19	Internal corrosion - inspect internal pipe surfaces	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	579c
102.20	Inspect aerial indicator on rectifier	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	573c
102.21	Inspect and perform electrical test of bonds	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	577a
103.01	Inspect navigable waterway crossing	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	412b
103.02	Inspect atmospheric breakout tanks – monthly external in-service	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:2	264, 432a, 432b
103.03	Inspect atmospheric breakout tanks – API 653 external in-service	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:3	432b
103.04	Inspect atmospheric breakout tanks – out of service	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:3	432b
103.05	reserved for future use					
103.06	Inspect pressurized breakout tanks – external inspection	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:3	264, 432c

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103.07	Repair pressurized breakout tanks	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:3	205b3, 307, 432c
103.08	reserved for future use					
103.09	Non-destructive testing of welds	3 yrs.	AOC Knowledge Test and Performance Evaluation	AOC Knowledge Test and Performance Evaluation	1:3	228, 234
103.10	reserved for future use					
103.11	Damage Prevention during excavation activities	3 yrs.	Knowledge Test	Knowledge Test	1:1	442
103.12	Inspection activities – welding on pipeline system	3 yrs.	Knowledge Test	Knowledge Test	1:1	208, 214, 216, 222, 224, 226, 228, 230
103.13	Inspection activities – non-destructive testing	3 yrs.	Knowledge Test	Knowledge Test	1:1	234, 234a
103.14	Conduct DOT pipeline pressure tests	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:2	Subpart E
103.15	CPM Leak detection	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	134, 444
104.01	Inspect buried pipe when exposed	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	403a, 442c6, 561, 569
104.02	Measure damage on pipe – manual measurement	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	403a, 585, 587
104.03	Measure wall thickness of pipe – ultrasonic measurement	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	403a, 585, 587
104.04	Place and maintain permanent line markers	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:4	403a, 410
104.05	Inspect surface conditions of right-of-way	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	403a, 412a, 442
104.06	Inspection following blasting	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	442c6
104.07	DOT semi-annual inspection of valves	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:2	116, 258, 420b

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104.08	Moving in-service pipe	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:3	246, 403a, 424
104.09	Inspection of clearance of existing pipe to underground structures	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:3	250, 403a
104.10	Inspection of support structures on existing aboveground components	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:4	110, 254, 403a
104.11	Backfilling an excavation	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:3	108, 252, 403a
104.12	General pipeline repair – Clockspring	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:2	403a, 422, 585a2
104.13	General pipeline repair – full encirclement sleeve	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:2	403a, 422, 585a2
104.14	General pipeline repair – component replacement	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:2	114, 118, 124, 126, 128, 130, 202, 204, 212, 266, 403a, 404, 422
104.15	General pipeline repair – stoppling	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:2	403a, 422
104.16	General pipeline repair – hot tap	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:2	403a, 422
104.17	General pipeline repair – evacuation of pipe – inert gases	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:3	402c10, 403a, 422
104.18	General pipeline repair – evacuation of pipe – flammable gases	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:3	402c10, 402c11, 403a, 422
104.19	General pipeline repair – evacuation of pipe – liquids	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:3	402c10, 402c11, 403a, 422
104.20	Safe disconnecting of abandoned pipeline facilities	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:3	402c10

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104.21	Welding on existing pipeline systems	3 yrs.	AOC Knowledge Test and Performance Evaluation	AOC Knowledge Test and Performance Evaluation	1:0 unless training then 1:1	208, 214, 216, 222, 224, 226, 228, 230, 403a, 422
104.22	Locate pipeline	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	422a
104.23	Temporary marking of pipeline	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	442c2
105.01	Provide security for pipeline facilities	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	258a, 264c, 420c, 434, 436
105.02	Monitor by remote security devices	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	258a, 420c, 436
105.03	Breakout tanks static protection – Line Velocity	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	405a
105.04	reserved for future use					
105.05	reserved for future use					
105.06	Overfill protective devices – knowledge of tank level alarms	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	402c11, 403a3, 428c
105.07	Overfill protective devices – response to tank level alarms	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	402c11, 402e1, 403a4, 428c
105.08	Operations of pipeline system – start pipeline	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	402c7, 402c8, 402c9, 402d, 402e, 406, 408
105.09	Operations of pipeline system – normal shutdown from normally controlling location	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	402c7, 402c8, 402c9, 402d, 402e, 406, 408
105.10	Operations of Pipeline System – normal shutdown from location not normally controlling	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	402c7, 402c8, 402c9, 402d, 402e, 406, 408
105.11	Operations of pipeline system – emergency pipeline shutdown	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	402c7, 402c8, 402c9, 402d, 402e, 406, 408

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105.12	Operations of Pipeline System – emergency station shut-in	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	402c7, 402c8, 402c9, 402d, 402e, 406, 408
105.13	Operations of pipeline system - Unit adjustment	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	402c7, 402c8, 402c9, 402d, 402e, 406, 408
105.14	Operations of pipeline system - Tank Management	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	402c9, 402d, 402e, 408a
105.15	Operations of Pipeline System - Monitor communications	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	408
105.16	Operations of Pipeline System - Monitor leak detection and line integrity	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	402c7, 402c8, 402c9, 402d, 402e, 408
105.17	Operations of Pipeline System - Monitor flow rates	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	402c9, 402d, 402e, 408
105.18	Operations of Pipeline System - Maintain pressures within allowable limits	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test and Performance Evaluation	1:1	402c7, 402c8, 402c9, 402d, 402e, 406, 408
105.19	Operations of Pipeline System - Manually or remotely open or close valves	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	402c7, 402c8, 402c9, 402d, 402e, 406, 408
105.20	Operations of Pipeline System – Operating pressure test	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	402c7, 402c8, 402c9, 402d, 402e, 406, 408
105.21	Operate pressure relieving devices for launching and receiving facilities	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:2	426
106.01	Maintain and repair power valve actuators	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:2	420a
106.02	Lubricate valve actuators	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:2	420a
106.03	Lubricate valves	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:2	420a

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106.04	Repair valves	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:2	116, 206, 420, 422, 428
106.05	Overpressure safety devices - Inspect, test and calibrate relief valves	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	116, 206, 262c, 420, 422, 428
106.06	Overpressure safety devices - pressure switches and transmitters	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	262c, 428a
106.07	Pressure Limiting Devices - Inspect, test and calibrate mechanical control valves	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	428a
106.08	Pressure Limiting Devices - Inspect, test and calibrate electronic/electro-hydraulic control loops	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	428a
106.09	Overfill protective devices – repair and replacement	3 yrs.	Knowledge Test and Performance Evaluation	Knowledge Test	1:1	428c

Detailed Covered Task Descriptions

101.01 Abnormal Conditions - outside of control room

- A. Be able to respond properly to discovery of an
 - B. Be able to respond properly to a fire or explosion
 - C. Be able to respond properly to pipeline system damage,
 - D. Be able to respond to an abnormal condition of a pipeline component (exposed pipe, missing line markers, atmospheric corrosion, inadequate pipe component support, etc.)
 - E. Be able to properly respond to the failure or malfunctioning
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101.02 Abnormal Conditions - inside of control room

- A. Be able to respond properly to discovery of an unauthorized
 - B. Be able to respond properly to a fire or explosion
 - C. Be able to respond properly to unexplained pressure
 - D. Be able to respond properly to the activation of a safety
 - E. Be able to respond properly to an unexplained status
 - F. Be able to properly respond to the failure or malfunctioning
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102.01 Measure structure-to-soil potentials

- A. Measure structure-to-soil potentials (NACE TM0497; manufacturer's instructions)
 - 1. Be able to select and use the proper instrumentation, test leads, and half-cell.
 - 2. Be able to hook up equipment using proper polarity according to company standards
 - 3. Be able to measure and record valid structure-to-soil potential.
 - B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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102.02 Advanced cathodic testing

- A. Measure polarization (NACE RP0169, RP0193, RP0285, & TM0497)
 - 1. Be able to select and use the proper instrumentation, test leads, and half-cell.
 - 2. Be aware of OQ qualification requirements for measurement of structure-to-soil potentials (Covered Task 102.01).
 - 3. Be able to hook up equipment using proper polarity according to company standards
 - 4. Be aware of OQ qualification requirements to install and synchronize current interrupters at current sites (Covered
- B. Test to detect cathodic interference from foreign structures (NACE RP0169, RP0193, RP0285, RP0286 & TM0497; A.W. Peabody's Control of Pipeline Corrosion, Chapter 12; Manufacturer's Instrument Instructions)
 - 1. Be able to select & use proper instrumentation, test leads and half cell
 - 2. Be aware of OQ qualification requirements for measurement of structure-to-soil potentials (Covered Task 102.01)
 - 3. Be able to hook up equipment using proper polarity according to company standards
 - 4. Be able to measure other readings as required.
 - 5. Be able to apply cathodic testing principles for investigating cathodic interference.
- C. Inspect and perform electrical test of electrical insulators

1. Be able to select & use proper instrumentation, test leads and half cell
 2. Be aware of OQ qualification requirements for measurement of structure-to-soil potentials. (Covered Task 102.01).
 3. Be able to measure other readings as required.
 4. Be aware that if tests indicate loss of electrical isolation or potential problem, a remedial action plan may need to be
- D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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102.03 Active Corrosion/Microbiological Corrosion (MIC) Testing

- A. Be able to perform corrosion-level inspection of pipe and coating (note that this inspection is more complex than the inspection for Covered Task 104.01).
 - B. Be able to measure pH and collect soil, coating and corrosion samples from exposed pipe.
 - C. Be able to perform MIC testing of soil and corrosion product samples.
 - D. Be able to prepare slurry and inoculate serial dilution test bottles.
 - E. Be able to interpret and record test results.
 - F. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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102.04 Maintain cathodic test leads (ETSs)

- A. Recognize electrical discontinuity (NACE Std TM0497-97)
 1. Be able to select and use proper instrumentation, test leads and half-cell.
 2. Be aware of OQ qualification requirements for measurement of structure-to-soil potentials (Covered Task 102.01).
 3. Be able to confirm that test leads are installed and terminated properly and valid measurements can be obtained.
 - B. Install new, repair or replace broken test lead (NACE Std TM0497-97)
 1. Be aware of OQ qualification requirements for removal of coating and cleaning of pipe surface. (Covered Task 102.13)
 2. Be able to correctly attach test leads to the structure
 3. Be able to make repairs on test leads.
 4. Be aware of OQ qualification requirements for measurement of structure-to-soil potentials (Covered Task 102.01) in order to confirm that test leads are installed and terminated properly, and valid measurements can be obtained.
 5. Be aware of OQ qualification requirements for backfilling around a pipeline (Covered Task 104.11).
 - C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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102.05 Read rectifier

- A. Read rectifier
 1. If rectifier contains a voltmeter and ammeter, be able to properly read meters. If rectifier does not contain either meter, be able to select and use the proper instrumentation and test leads to read volts and amps.
 2. Be able to recognize major changes in volt and amp readings from previous readings and know who to notify of the changes
 3. Be able to document the measurements according to company standards
 - B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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102.06 Use of current interrupters on rectifiers

- A. Install/utilize/remove current interrupters (NACE Std TM0497)
 - 1. Be able to select & use proper instrumentation and test leads.
 - 2. Be able to hook-up and utilize interrupter
 - 3. Be aware of OQ qualification requirements for reading, maintenance and adjustment of a rectifier (Covered Tasks 102.05, 102.07 and 102.08)
 - B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task
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102.07 Adjust rectifiers

- A. Adjust rectifier
 - 1. Be able to select and use the proper instrumentation, test leads, and half-cell
 - 2. Be able to adjust output of varies types of rectifiers
 - 3. Be able to adjust and test aerial indicator set point, if applicable
 - 4. Be aware of OQ qualification requirements for reading of rectifier (Covered Task 102.05)
 - 5. Be able to measure DC output voltage in Rectifier
 - 6. Be able to measure mV drop across shunt and convert to current reading
 - 7. Be able to document the measurements
 - B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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102.08 Maintain rectifier

- A. Repair or replace defective components. Note that simple replacement of fuses is not included here as a covered task, if the individual is OQ qualified to read a rectifier (Covered Task 102.05). (Manufacturer's manual)
 - 1. Be able to select & use proper instrumentation and test leads.
 - 2. Have general knowledge of how each component works in the various types of rectifiers and know their symptoms and how to troubleshoot them.
 - 3. Be aware of OQ qualification requirements for reading of rectifier (Covered Task 102.05) and for adjusting rectifier (Covered Task 102.07)
 - B. Check/repair rectifier connections (cathodes/anodes)
 - 1. Be able to select & use proper instrumentation and test leads.
 - 2. Know the symptoms of various types of faulty connections
 - 3. Know the proper equipment and materials to use for various cable and connection repairs
 - C. Troubleshoot rectifier for minor and technical abnormal operating conditions.
 - 1. Minor rectifier troubleshooting (AC power, fuses, breakers)
 - 2. Technical rectifier troubleshooting (voltage, amp output)
 - D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task
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102.09 Atmospheric corrosion – inspection of coatings

- A. This covered task assumes that all pipeline components are coated and therefore will be inspected during the performance of this covered task.
- B. Initial damage assessment inspection of atmospheric coatings.
 - 1. Be knowledgeable in types of damage which could be found on atmospheric coating (cracks, disbonded coating, gouges, peeling, blistering, flaking)
 - 2. Be aware of proper documentation procedures for reporting atmospheric coating damage

- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

102.10 Atmospheric corrosion – surface preparation

- A. Surface preparation
 - 1. Be aware of Company policies for safe work permitting.
 - 2. Be able to remove existing coating and/or prepare surface to be coated including the selection of the proper equipment
 - 3. Be aware of company requirements for inspection of pipe for damage and corrosion.
 - 4. Be aware of OQ qualification requirements to inspect atmospheric coatings (Covered Task 102.09)
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

102.11 Atmospheric corrosion – application of coatings

- A. Application of atmospheric coatings (Manufacture's Specs)
 - 1. Be aware of OQ requirements for surface preparation for prevention of atmospheric corrosion (Covered Task 102.10)
 - 2. Have knowledge of the company-approved coatings available
 - 3. Be able to select the proper coating system for atmospheric applications
 - 4. Know where to find and be able to follow the proper steps for applying coating systems, including use of primers
 - 5. Be aware of OQ qualification requirements for inspection of coatings (Covered Task 102.09)
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

102.12 reserved for future use

102.13 External coatings on buried or submerged components - application and repair

- A. Surface Preparation
 - 1. Be able to properly remove existing pipe coating, without damage to the underlying pipe material.
 - 2. Be able to properly clean and prepare the pipe to repair coating.
 - 3. Be aware of OQ qualification requirements to inspect buried pipe (Covered Task 104.01).
 - 4. Be aware of OQ qualification requirements for measurement of damage on pipe. (Covered Task 104.02)
 - 5. Be able to document inspection on appropriate pipeline inspection/modification forms and reports.
- B. Application and repair of external coatings on buried or submerged components (Manufacturer's instructions)
 - 1. Have knowledge of the Company-approved coating repair materials available and which coating repair material is compatible with the existing coating being repaired.
 - 2. Know where to find and be able to follow the proper steps for applying coating systems, including use of primers
 - 3. Be able to properly apply repair coating to defective area.
 - 4. Be able to test and inspect for proper application of that coating repair material
 - 5. Be aware of and use the proper pipeline inspection/modification forms and reports.
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

102.14 Cathodic protection remediation

- A. Install bonds and/or bond provision (NACE Std RP0177 & RP0286)
 - 1. Be aware of OQ qualification requirement for the correct method to make a connection to the pipeline/structure (Covered Task 102.04)
 - 2. Be able to select and use the proper instrumentation, test leads, and half-cell.
 - 3. Be aware of OQ qualification requirements for measurement of structure-to-soil potentials. (Covered Task 102.01).
 - 4. Be able to measure other readings as required.
- B. Install anode (NACE RP0169, RP0572, RP0285, RP0193, & TM0497)
 - 1. Be able to select and use the proper instrumentation, test leads, and half-cell.
 - 2. Be aware of OQ qualification requirements for measurement of structure-to-soil potentials. (Covered Task 102.01).
 - 3. Be able to measure other readings as required.
 - 4. Be aware of OQ qualification requirements to properly make an electrical connection to the pipeline/structure (Covered Task 102.04).
 - 5. Be aware of OQ qualification requirements to properly install an electrical test lead (Covered Task 102.04)
- C. Install rectifiers (NACE RP0169, RP0572, RP0285, RP0193, & TM0497)
 - 1. Be aware of OQ qualification requirement for making an electrical test lead connection to the structure. (Covered Task 102.04)
 - 2. Be aware of OQ qualification requirements to perform required interference testing. (Covered Task 102.02)
 - 3. Be aware of OQ qualification requirements to adjust rectifier. (Covered Task 102.07)
- D. Remediation of casings shorted to the pipeline (NACE RP0169, RP0572, RP0285, RP0193, & TM0497)
 - 1. Be aware of OQ qualification requirements for measurement of structure-to-soil potentials. (Covered Task 102.01).
 - 2. Be able to measure other readings as required
 - 3. Be aware of OQ qualification requirements to check an electrical test station for electrical continuity (shorted wires). (Covered Task 102.04)
 - 4. Be aware of OQ qualification requirements for properly repairing or installing an electrical test station (Covered Task 102.04)
 - 5. If short is not in test leads, have knowledge of the various alternatives for monitoring/repair and have the knowledge and skill to select the most cost effective alternative.
 - 6. Be aware of OQ qualification requirements for moving in-service pipe (Covered Task 104.08)
- E. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

102.15 Internal corrosion – control injection rate

- A. Control injection rate of inhibitor (MSDS sheets; manufacturer's instructions)
 - 1. Have knowledge of Material Safety Data Sheet (MSDS) for the specific corrosion inhibitor used.
 - 2. Be aware that pump injection rates are a function of pump speed and pump volume, both of which can be adjusted on most injection pumps.
 - 3. Be aware of OQ qualification requirements to monitor injection rate (Covered Task 102.16)
 - 4. Have knowledge of which products on a specific pipeline into which inhibitor is injected.
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

102.16 Internal corrosion – monitor injection rate

- A. Monitor injection rate of inhibitor (manufacturer's instructions)
 - 1. Have knowledge of Material Safety Data Sheet (MSDS) for specific corrosion inhibitor used.
 - 2. Be able to read the flow measurement device in order to monitor product injection rate
 - 3. Be aware of amount of inhibitor on hand and have capability to calculate when inhibitor will need to be replenished at current injection rate.

B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

102.17 Internal corrosion – insertion and removal of probes/coupon

- A. Insertion or removal of probe or coupon (NACE Std RP0775-99; RCS Manufacturer's Instructions)
1. Be aware of OQ qualification requirements to replace a pipeline component in order to properly install and remove coupon-probe holder, packing gland nuts & safety clamp assembly for leak free operation. (Covered Task 104.14)
 2. Be able to confirm that coupon and/or probes are installed properly, and valid measurements can be obtained.
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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102.18 Internal corrosion – monitoring probes

- A. Monitor - Electrical Resistance (E/R) Probes (RCS Manufacture's Instructions)
1. Be able to use proper probe instrumentation, leads and calibration devices.
 2. Be able to read and record valid probe readings.
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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102.19 Internal corrosion - inspect internal pipe surfaces

- A. Visual inspection of internal surface
1. Have knowledge of how corrosion would visually appear as on internal pipe surfaces.
 2. Be able to differentiate between corrosion and wall loss due to flow conditions.
 3. Be able to use inspection instruments such as lights and magnifiers.
 4. Be able to properly document the results of the inspection.
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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102.20 Inspect aerial indicator on rectifier

- A. Check for proper operation of aerial indicator
1. Be able to evaluate the as-found condition of the aerial indicator system
 2. Be able to describe reporting procedures if an aerial indication is malfunctioning.
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
-

102.21 Inspect and perform electrical test of bonds

- A. Inspect and perform electrical test of bonds (NACE RP0169, RP0193, RP0285, RP0286 & TM0497)
1. Be able to select & use proper instrumentation, test leads and half cell
 2. Be aware of OQ qualification requirements for measurement of structure-to-soil potentials. (Covered Task 102.01)
 3. Be able to hook up equipment using proper polarity according to company standards
 4. Be able to measure other readings as required.
 5. Understand bond resistance data and required adjustments to insure adequate protection.
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

103.01 Inspect navigable waterway crossing

- A. Inspect navigable waterway crossing
 - 1. Be able to locate and verify benchmarks
 - 2. Be able to properly use electromagnetic pipe locator equipment.
 - 3. Be able to perform a topographic survey, including use of hand digging and probe bars.
 - 4. Be able to perform a bathymetric survey, including horizontal position and depth of cover.
 - 5. Know Company documentation requirements for inspection of pipeline crossings under navigable waterways.
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

103.02 Inspect atmospheric breakout tanks – monthly external in-service

- A. Be able to visually inspect tank external surface (American Petroleum Institute (API) 653 section 6.3.1 and all referenced standards and codes)
- B. Know proper procedures for documentation of visual inspections
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

103.03 Inspect atmospheric breakout tanks – API 653 external in-service

- A. Be able to visually inspect tank external surface (API 653 section 4.3.2 and all referenced standards and codes)
- B. Know proper procedures for documentation of visual inspections
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

103.04 Inspect atmospheric breakout tanks – out of service

- A. Be able to perform ultrasonic inspection on tank shell, bottom, fixed roof and floating roof plates (API 653 section 4.3.3 and all referenced standards and codes).
- B. Be able to perform internal inspection (API Standard 650 appendix H and all referenced standards and codes; API 653 section 4.4 and all referenced standards and codes).
- C. Know proper documentation procedures (Appendices C1.1 and C2.1 of API 653)
- D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

103.05 Reserved for future use

103.06 Inspect pressurized breakout tanks – external inspection

- A. Be able to perform external inspection covering items (API Standard 510, “Pressure Vessel Inspection: Maintenance Inspection, Rating, Repair and Alteration” and all referenced standards and codes).
- B. Be able to perform internal or on-stream external inspection as described as described in API Standard 510 section 6.4 and all referenced standards and codes.
- C. Be able to perform pressure test as described in API Standard 510 section 6.5 and all referenced standards and codes.
- D. Know proper documentation procedures for external inspections (API Standard 510 section 6.7).

E. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

103.07 Repair pressurized breakout tanks

- A. Repair pressurized breakout tanks in accordance with API Standard 510 section 7 and all referenced standards and codes
- B. Perform pressure test as described in API Standard 510 section 6.5 and all referenced standards and codes.
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

103.08 reserved for future use

103.09 Non-destructive testing of welds

- A. Be able to perform non-destructive testing on pipeline welds and determine the acceptability of the weld
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task. Pacific MaintMan Sec: 4.7.6.4; API Std 1104

103.10 reserved for future use

103.11 Damage Prevention during excavation activities

- A. Be able to identify requirements for inspection during excavation activities
 - 1. Make/receive one call notifications
 - 2. Verify pipeline facility has been located and properly marked prior to excavation activities
 - 3. Maintain field contact with the KM or third party excavator during the excavation activities to avoid potential problems and to promptly resolve any problems that may arise
 - 4. If required, be able to communicate excavation information to local Supervisor and/or designated company representative.
 - 5. Perform inspection as frequently and to the extent necessary based on consideration of the following:
 - i. The type and duration of the excavation activity involved
 - ii. The proximity to the operator's facilities
 - iii. The type of excavating equipment involved
 - iv. The type of area in which the excavation activity is being performed including special considerations for High Consequence Areas
 - v. The potential for a serious incident should damage occur
 - vi. The past experience of the excavator
 - vii. The potential for damage occurring which may not be easily recognized by the excavator such as improper support during excavation and backfill
 - viii. The potential for facility markings to become obscured
 - 6. Identify when hand digging is required
 - 7. Identify when buried pipe inspections should be performed
 - 8. Identify when leakage surveys should be performed
 - 9. Identify when surface of right-of-way inspections should be performed
 - 10. Monitor for correct backfilling in accordance with procedures
 - 11. Monitor for settlement during and after excavation activities
 - 12. Monitor for and verify system integrity during and after excavation activities

- 13. Monitor for proper clearance between the pipeline and foreign underground structures in accordance with Covered Task 104.09
- B. Be able to perform inspection during excavation activities in accordance with the requirements identified in Step A
- C. If blasting or other conditions require leak surveys, be able to initiate leak surveys in accordance with Covered Task 104.06
- D. If required, be able to have surface of right-of-way inspected in accordance with Covered Task 104.05
- E. Be able to perform inspection after excavation activities in accordance with the requirements identified in Step A
- F. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
- G. Be able to perform Company documentation procedures

103.12 Inspection activities – welding on pipeline system

- A. Be able to verify the welding is done in accordance with Company welding procedures (API 1104).
- B. Be able to verify that welder is qualified under Company procedures
- C. Be aware of OQ qualification requirements for inspection by non-destructive testing (Covered Tasks 103.13).
- D. Be aware of company requirements for non-destructive testing (NDT) for tie-ins to an existing pipeline
- E. Be aware of proper Company documentation procedures
- F. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task

103.13 Inspection activities – non-destructive testing

- A. Be able to verify that personnel performing NDT have been trained in the established procedures and in the use of the NDT equipment used in the testing
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

103.14 Conduct DOT pipeline pressure tests

- A. Pressure test existing lines under DOT jurisdiction in order to verify existing MOP or to document new MOP (DOT Part 195 Sec: Subpart E)
 - 1. Know jurisdiction responsibilities of DOT with regards to KM pipeline.
 - 2. Know DOT testing requirements for pipeline to be tested.
 - 3. Know Company procedures for performing pressure tests, including Company notifications.
 - 4. Be aware of OQ qualification requirements for removal of a pipeline component (Covered Task 104.14)
 - 5. Know MOP for pipeline to be tested.
 - 6. Be aware of DOT requirements and allowances for testing medium.
 - 7. Know procedures for use of recording equipment.
 - 8. Know procedures for notification of appropriate agency if oversight is required.
 - 9. Know Company procedures for documenting pressure test results
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

103.15 CPM Leak detection

- A. Be able to inspect, test and adjust the leak detection or line integrity system to verify that it is functioning properly in good operating condition
- B. Be able to verify the leak detection system meets its design parameters
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
- D. DOT CompMan Sec: 195.444

104.01 Inspect buried pipe when exposed

- A. Initial damage assessment inspection of coating
 - 1. Be aware of Company requirements for excavation near the pipeline.
 - 2. Be familiar with Company procedures for working safely in an excavation.
 - 3. Be knowledgeable in types of damage which could be found on coating (such as cracks, disbonded coating, gouges, holidays)
 - 4. Be aware of procedures for documenting damage to buried/submerged coating
- B. Inspect for physical damage on pipeline
 - 1. Be knowledgeable in types of damage which could be found on a pipeline, such as mill scale, discoloration, pitting, dents/gouges, bulges, wrinkles, buckles, visual weld defect, metal loss and corrosion
 - 2. Be aware of OQ qualification requirements for measuring damage on pipe (Covered Task 104.02).
 - 3. Be aware of procedures for documenting damage to pipeline, especially with regard to the timing or repair requirements of the Pipeline Integrity Regulation.
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task

104.02 Measure damage on pipe – manual measurement

- A. Measure damage (such as pits, gouges, dents, metal loss) depth
 - 1. Be able to measure damage depth using a mechanical measuring device, such as a pit depth gauge or caliper.
 - 2. Understand how to use additional tools if necessary to get accurate reading of damage depth, such as straight edge, square and/or tape measure
- B. Measure the affected corroded area (for RSTRENG or B31.4 calculations)
 - 1. Be able to safely clean corroded area.
 - 2. Be able to measure depth using mechanical measuring device and additional tools if necessary.
 - 3. Be able to measure length and width of corroded area.
 - 4. Know what is required on a paper sketch/imprint of corroded area.
- C. Know proper documentation procedures for reporting damage and/or corrosion, especially with regard to the timing or repair requirements of the Pipeline Integrity Regulation
- D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.03 Measure wall thickness of pipe – ultrasonic measurement

- A. Be able to safely clean corroded area, if applicable.
 - B. Be aware of OQ qualification requirements for measuring damage on pipe (Covered Task 104.02)
 - C. Be able to take a wall thickness reading using an ultrasonic meter according to manufacturer's operating instructions. (manufacturer's manual)
 - D. If meter needs calibration, be able to calibrate using manufacturer's calibration instructions. (manufacturer's manual)
 - E. Be aware of pipe geometry as it pertains to proper placement of ultrasonic transducer using manufacturer's instructions
 - F. Have knowledge of nominal wall thickness of pipe in area being measured.
 - G. Know proper documentation procedures for reporting wall thickness abnormalities.
 - H. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
 - I. DOT Part 195 Sec: 403a, 585 & 587
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104.04 Place and maintain permanent line markers

- A. Install permanent line marker
 - 1. Be aware of tools needed (post pounder, rivet tool, rivets, etc.)
 - 2. Be aware of proper and correct information to be included on signs (lettering, colors, off-sets, local phone numbers)
 - 3. Be aware of required locations for line marker installation (RR crossings, road crossings, river crossings, line of sight if required by local instructions, fence line).
 - 4. Be aware of OQ qualification requirements for locating a pipeline (Covered Task 104.22)
 - 5. Be able to properly install marker post and marker (depth of post, straightness and level of post and marker, arrow direction agree with pipeline direction, etc.)
- B. Inspection of line markers
 - 1. Be aware of required locations for line marker installation (RR crossings, road crossings, river crossings, line of sight if required by local instructions, fence line).
 - 2. Be aware of proper and correct information to be included on signs (lettering, colors, off-sets, local phone numbers)
 - 3. Be able to properly report existence of damaged line markers to appropriate company personnel for repair or replacement.
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task

104.05 Inspect surface conditions of right-of-way

- A. Be aware of surface conditions to check, such as: Vegetation overgrowth, Erosion, leaks/wet spots, property damage, construction activity, exposed pipe, frost ball (on natural gas liquids lines lines), earth movement (landslides, sink holes) and washouts
- B. Be aware of proper documentation procedures for reporting abnormal surface conditions
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
- D. DOT Part 195.412

104.06 Inspection following blasting

- A. Utilize leak survey techniques after blasting
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
- C. Be aware of the OQ Covered Task 103.11

104.07 DOT semi-annual inspection of valves

- A. Verify location of valve to be inspected
 - 1. Be able to understand and use the correct information necessary to identify the valve location.
 - 2. Be aware of Company policies for safe work permitting
- B. Verify the valve number and nameplate data
 - 1. Be able to check nameplate, milepost, line section number, pipeline size and/or valve number as appropriate
- C. Verify valve type and manufacturer
 - 1. Be aware of manufacturer's catalogs and equipment data
- D. Check valve body for leaks, damage or corrosion
 - 1. Be able to correctly use gas detection equipment (such as a gas detector or soap leak detector) to check for leaks if required by local procedures

2. Be able to visually identify leakage
3. Be aware of OQ qualification requirements for inspection of atmospheric coatings (Covered Task 102.09)
- E. Know procedures to notify Operations prior to operation of valve
- F. Be able to safely operate the valve to verify that it operates properly
- G. Return valve to original position
 1. Be able to verify original position, using valve stem or valve position indicator rod if available
- H. Re-lock in proper position or provide security as appropriate
 1. Be able to secure locking device, usually chain and lock
 2. Be able to verify valve is in original position
- I. Know proper documentation procedures
- J. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.08 Moving in-service pipe

- A. Be able to determine the product type (MSDS, DOT Part 195)
 1. Know who to contact to determine the product which will be at the job site during the work.
 2. If product is a Highly Volatile Liquid (HVL), be aware of pressure restrictions and isolation requirements prior to moving the pipe (DOT Part 195.424).
- B. Profile pipeline.
 1. Be aware of OQ qualification requirements for locating pipeline (Covered Task 104.22)
 2. Be able to determine existing location of pipeline
 3. Be able to approximately determine local soil conditions (sand, clay, rock, drainage)
 4. Be able to identify approximate new location of pipeline
- C. Review pipeline drawings
 1. Be able to read and understand information on pipeline drawings, such as wall thickness, grade of steel, diameter of pipe, pipe bends, pipe fittings.
 2. Know procedure for notification to KMEP Environmental Dept. for their review prior to commencement of excavation.
 3. Ensure that all welds within the area of relocation have been non-destructively tested, if applicable.
- D. Excavation
 1. Be aware of KMEP requirements for excavation near the pipeline.
 2. Be familiar with KMEP procedures for working safely in an excavation
 3. Be aware of all permit requirements, such as environmental, excavation, etc.
 4. Be aware of all environmental concerns, such as permitting, water disposition and erosion control.
 5. When excavating around the pipeline, be able to determine proper depth of excavation to ensure adequate working room around pipeline.
 6. When excavating around the pipeline, be able to provide adequate support (such as dirt or skids) to exposed pipeline.
- E. Pipe/coating inspection.
 1. Be aware of OQ qualification requirements for inspecting buried pipe when exposed (Covered Task 104.01).
- F. Moving the pipeline.
 1. Be aware of steps necessary to prepare new bed, such as crumbing or bedding the ditch
 2. Be aware of advantages and disadvantages of various mechanical lifting devices (side booms, boom trucks, etc.)
 3. Understand safe rigging and lifting procedures.
 4. Be aware of safety precautions associated with lowering the pipeline, such as skid removal, internal pressure restrictions, and local requirements for isolation of the pipeline being relocated.
 5. In areas where little or no slack is available on the pipeline, be aware of how to insure secondary stresses are minimized.

G. Backfilling

1. Be aware of OQ qualification requirements for backfilling the pipeline trench (Covered Task 104.11).

H. Pressure monitoring

1. Be aware of company procedures for pressure testing a relocated pipeline.

I. Be aware of company procedures for proper documentation procedures.

- J. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.09 Inspection of clearance of existing pipe to underground structures

- A. Be aware of KM policy on proximity of foreign crossing for physical clearance

- B. Be aware of company policies for working in an excavation and for safe work permitting

- C. Be aware of possible cathodic interferences between structure and pipeline and know procedure for advising Corrosion Department of proposed clearance.

- D. Be aware of OQ qualification requirements for inspection of buried pipe (Covered Task 104.01).

- E. Be aware of company procedures for proper documentation

- F. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.10 Inspection of support structures on existing aboveground components

- A. Be able to inspect support structures according to manufacturer's instructions and the local procedures

- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task

104.11 Backfilling an excavation

- A. Inspection of backfill for damaging materials

1. Be able to verify ditch is free of any debris.

2. Be able to verify backfill material is acceptably free of rocks and debris.

- B. Protect pipe coating

1. Be able to ensure pipe coating will not be damaged with backfilling the hole or when compacting backfill around pipe.

2. In rocky soil, ensure a rock shield coating or equivalent protection is used.

3. Be able to ensure compaction work does not damage pipe or coating.

- C. Ensure correct cover over pipeline, being aware of cover requirements in DOT Part 195

- D. Be aware of OQ qualification requirements for inspection of buried pipe when exposed (Covered Task 104.01)

- E. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.12 General pipeline repair – Clockspring

- A. Be aware that all Company health and safety guidelines (safe work permit) must be met prior to commencement of work

- B. Be aware that installation of Clockspring device requires vendor training and certification

- C. Be familiar with Company procedures for working safely in an excavation

- D. Be aware of OQ qualifications for coating removal and pipeline surface preparation prior to application of repair material and coating repair after installation of Clockspring (Covered Task 102.13).

- E. Be aware of manufacturer's instructions for filling pitted and corroded areas with appropriate material before applying Clockspring.
- F. Be aware of manufacturer's instructions for installation of Clockspring.
- G. Be aware of OQ qualification requirements for backfilling around a pipeline (Covered Task 104.11).
- H. Know proper documentation procedures.
- I. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.13 General pipeline repair – full encirclement sleeve

- A. Be aware that all Company health and safety guidelines (safe work permit) must be met prior to commencement of work.
- B. Be familiar with Company excavation procedures
- C. Be familiar with Company procedures for working safely in an excavation
- D. Be aware of specific surface preparation requirements such as removal of pipe coating, removal of any mechanical damage to pipe and filling of damaged area with appropriate filler
- E. Be aware of OQ qualification requirements for determining thickness of pipe (Covered Task 104.03) prior to commencement of welding on pipe.
- F. Be able to fit a full encirclement sleeve on pipeline using sleeve clamps
- G. Be aware of OQ qualification requirements for inspection of welding (Covered Task 103.12), for non-destructive testing of welds (Covered Task 103.13) and for welding on an existing pipeline system (Covered Task 104.21).
- H. Be aware of company procedures for pressure testing a pipeline after welding
- I. Be able to visually inspect for leakage from the repair area.
- J. Be aware of OQ qualifications requirements for application of buried coatings (Covered Task 102.13).
- K. Be aware of OQ qualification requirements for backfilling around a pipeline (Covered Task 104.11).
- L. Be aware of proper documentation procedures.
- M. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.14 General pipeline repair – component replacement

- A. Pipe or pipeline component replacement
 - 1. Be aware that all Company health and safety guidelines (safe work permit) must be met prior to commencement of work.
 - 2. Be able to confirm the type of product in pipe or pipeline component before commencement of work.
 - 3. Be aware of Company procedures to isolate the component from electrical power if necessary (lockout-tagout) and from pressure within the pipeline before removing component.
 - 4. Be able to de-energize rectifiers and bond in affected area if necessary.
 - 5. Be aware of OQ qualification requirements for evacuation of pipe (one of Covered Tasks 104.17, 104.18 or 104.19, depending on the type of product being transported).
 - 6. Be able to identify specific component to be replaced. (manufacturer's information)
 - 7. Verify that new component is not damaged before and after installation/repair.
 - 8. Be able to read and understand project specification (or purchase order or contract) to ensure specified component is being installed
 - 9. Be aware of proper steps for removal and replacement of specific component, including proper lifting and support techniques which will prevent damage to component and/or coating (manufacturer's information; Pacific MaintMan)
 - 10. Be able to have proper removal equipment on site for equipment removal (examples are: lifting equipment, pin bars, spud wrench, flange spreader, hydraulic jack, etc.)

11. After completion of component replacement, be aware of company procedures to remove electrical isolation and reintroduce pressure to the component.
 12. Be able to verify replaced component works properly and visually inspect work area for leaks upon job completion if system is active. If system is not active, be able to take proper precautions (such as lockout-tagout or notification) to ensure inspection is completed upon system start-up.
 13. Be aware of company documentation procedures
 14. Note that this covered task procedure is suitable for replacement of components such as mainline pipe, mainline pump seals, pump bearings, pump rotating elements, and RTDs, entire mainline pumps, vapor detectors, explosive air detectors (EAD), hazardous area monitors (HAM), pig sigs, gravimeters, DRA nozzles, filters ("O" rings, gaskets, complete filter), thermowells and flow switches.
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.15 General pipeline repair – stoppling

- A. Installation of stopple fittings or stoppling devices
1. Be aware that all Company health and safety guidelines (safe work permit) must be met prior to commencement of work.
 2. Be familiar with Company procedures for working safely in an excavation if appropriate
 3. Be aware of OQ requirements for inspection of buried or submerged pipe when exposed (Covered Task 104.01)
 4. Be aware of OQ qualification requirements for removal of a pipeline component (Covered Task 104.14)
 5. Be able to determine the type of product and the pressure in the pipeline at the point of stopple installation.
 6. Be able to have on site all necessary stopple equipment, such as stopple tee, sandwich valve, tapping machine, plugging machine, and hydraulic machine.
 7. Using Company procedures and manufacturer's instructions, install stopple tee, blind flange, completion plug with coupon, and install and remove stoppling equipment.
 8. Be aware of OQ qualification requirements for welding on a pipeline (Covered Task 104.21)
 9. Be aware of operating parameters (maximum operating pressure, bit travel requirements) of the stopple machine.
 10. After installation of the stopple tee, be able to test the installation by filling the stopple tee with a test medium and a pressure test conducted to assure there are no leaks from the stopple tee.
 11. Be aware of company procedures for pressure testing a pipeline after welding
 12. Be able to visually inspect for leakage from the stopple tee
 13. Know proper documentation procedures.
- B. Stoppling procedure
1. Be aware of Company and manufacturer's stoppling procedures. Training and experience are required.
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.16 General pipeline repair – hot tap

- A. Be aware that all Company health and safety guidelines (safe work permit) must be met prior to commencement of work
- B. Be aware of OQ qualification requirements for removal of a pipeline component (Covered Task 104.14)
- C. Be aware of OQ qualification requirements for welding on an existing pipeline (Covered Task 104.21)
- D. Be able to provide adequate room to allow safe operation of tapping machine.
- E. Read and fully understand the manual provided with the tapping machine (training and experience is required).
- F. Be aware of operating parameters (maximum operating pressure, bit travel requirements) of the tapping machine and the maximum design pressure stamped on the saddle clamps.

- G. Be able to have all required equipment on site when using a tapping machine, such as nipples, Teflon tape and a full port ball valve.
- H. Once tap has been completed, be aware of procedure to remove tapping machine from pipe.
- I. Be able to install plug and cap.
- J. Be able to visually inspect work area for leakage upon completion of work.
- K. Be aware of company procedures for pressure testing a pipeline after welding
- L. Know proper documentation procedures.
- M. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.17 General pipeline repair – evacuation of pipe – inert gases

- A. Venting and/or blowdown of inert gases or entrained air
 - 1. All Company health and safety guidelines (safe work permit) must be met prior to commencement of work.
 - 2. Be aware of techniques to accomplish pipeline or vessel blowdowns using vacuum trucks with open domes.
 - 3. Be ready to handle venting and/or blowdown by having adequate handling capability at work site (pumps, barrels, vacuum trucks, control devices, etc.).
 - 4. Be able to follow safety procedures including safety-wiring or taping all hose and coupling connections, manning the blowdown site at all times, selection of venting location, grounding of all equipment and use of personal hearing protection when required.
 - 5. Be aware of health effects of inert gas being vented and/or blowdown
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.18 General pipeline repair – evacuation of pipe – flammable gases

- A. Venting and/or blowdown of flammable gases
 - 1. All Company health and safety (safe work permit) guidelines must be met prior to commencement of work.
 - 2. Be ready to handle venting and/or blowdown by having adequate handling capability at work site (examples are: pumps, barrels, vacuum trucks, flares, control devices, etc.).
 - 3. Be able to follow safety procedures including safety-wiring or taping all hose and coupling connections, manning the blowdown site at all times, selection of venting location, grounding of all equipment and use of personal hearing protection when required.
 - 4. Be aware of health effects of flammable gas being vented and/or blowdown
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.19 General pipeline repair – evacuation of pipe – liquids

- A. Drainup of liquid
 - 1. All Company health and safety (safe work permit) guidelines must be met prior to commencement of work.
 - 2. Be aware of techniques to accomplish pipeline or vessel draindowns.
 - 3. Be ready to handle draindown by having adequate handling capability at work site (pumps, barrels, vacuum trucks, etc.).
 - 4. Be able to follow safety procedures including safety-wiring or taping all hose and coupling connections, manning the draindown site at all times, grounding of all equipment and use of personal hearing protection when required.
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.20 Safe disconnecting of abandoned pipeline facilities

- A. Be aware that all Company health and safety (safe work permit) guidelines must be met prior to commencement of work.
- B. Be aware of OQ qualification requirements for drardown and/or blowdown prior to removal of any pipeline components (Covered Tasks 104.17, 104.18 and/or 104.19).
- C. Be aware of Company procedures for de-energizing and energizing rectifiers in affected area.
- D. Be aware of bonding and grounding requirements while work is being performed
- E. Know which Company personnel are to be notified of potential requirement for cathodic connection of disconnected pipe.
- F. Be able to safely disconnect component from pipeline system
- G. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.21 Welding on existing pipeline systems

- A. Be aware that all Company health and safety guidelines (safe work permit, hot work permit) must be met prior to commencement of work.
- B. Be aware of Company policies for working in an excavation and for safe work permitting
- C. Be able to verify current Company welding qualification
- D. Be aware of the following DOT guidelines and restrictions on:
 - 1. Welding of supports and braces
 - 2. Miter joints
 - 3. Repair of arc burns
 - 4. Repair or removal of weld defects
 - 5. Weather conditions during welding
- E. Be able to have on site and use proper welding equipment (welding helmet and eye shield, gloves, etc.)
- F. Be aware that pressure limitations may be required when welding on the pipeline, and be able to obtain those limitations from the proper Operations personnel.
- G. Be aware of OQ qualification requirements for determining thickness of pipe (Covered Task 104.03) prior to commencement of welding on pipe.
- H. Be aware that a fire watch is required during the welding activity.
- I. Be aware that proper ventilation is required in work area.
- J. Be aware of OQ qualification requirements for inspection of welding and non-destructive testing on welds (Covered Tasks 103.12 and 103.13).
- K. Be able to visually inspect work area for leakage upon completion of work.
- L. Know proper documentation requirements.
- M. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

104.22 Locate Pipeline

- A. Locate line
 - 1. Be able to read information on pipeline drawings (engineering vs continuous stationing, station numbering, legends, scaling, depth where available)
 - 2. Verify line section being located.
 - 3. Be able to use specific linefinder according to manufacturer's operating instructions.
 - 4. Be knowledgeable in local conditions to ensure linefinder readings are within the expected range.
 - 5. Physically locate the pipeline, using probing tool as necessary.
 - 6. Disconnect cathodic protection bonds as needed to eliminate confusion if several pipelines are bonded together.
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task

104.23 Temporary marking of Pipeline

- A. Be aware of OQ qualification requirements for locating a pipeline (Covered Task 104.22)
 - B. Install appropriate temporary line makers
 - 1. Be aware of various types of temporary line markers which are used locally and proper installation techniques: Feathers, Paint, Pin-flags, Stakes, Curb markers and Street markers
 - 2. Required locations (construction sites, line crossings, pot holes, etc.)
 - 3. Understand subsurface utility color coding
 - C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task
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105.01 Provide security for pipeline facilities

- A. Be able to inspect perimeter fencing, signs and guard posts.
 - B. If fence integrity is compromised, be aware who to notify and how to properly document the notification.
 - C. Insure fence and gates are locked and closed per local station instructions.
 - D. Be aware of company policy for chaining and locking remote valves
 - E. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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105.02 Monitor by remote security devices

- A. Be aware of which local facilities are monitored by remote security devices. (camera, alarm)
 - B. If remote security device goes into alarm mode, know who to notify and how to document the notification.
 - C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task
 - D. Pacific Local Operating Procedures
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105.03 Breakout tanks static protection – Line Velocity

- A. Understand the static electricity concept that dictates limiting the velocity of product through the pipe (API RP 2003 section 4.5.2)
 - B. Understand how the rate of flow translates into velocity as a function of pipe internal diameter
 - C. Be able to determine the pipe ID for a given fill line
 - D. Be able to locate and identify the appropriate flow rate for a given fill line
 - E. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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105.04 reserved for future use

105.05 reserved for future use

105.06 Overfill protective devices – knowledge of tank level alarms

- A. Be able to convert a level or pressure in the vessel to a volume.
- B. Be able to identify alarm levels in the tank gauging system
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

D. Pacific Local Operating Procedures

105.07 Overfill protective devices – response to tank level alarms

- A. Know sequence of events if overfill protective device goes into alarm mode
 - 1. Understand the proper response for the Tank level alarms
 - 2. Be able to execute the proper procedure
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.08 Operations of pipeline system – start pipeline

- A. Be able to start up the pipeline in such a manner as to minimize the pressure surge created
- B. Be able to recognize and identify the proper component alignment (valve, pump, etc.) which provides the proper flow path that must exist before pipeline can be started.
- C. Be aware of OQ qualification requirements to monitor pressures and flowrates (Covered Tasks 105.17 and 105.18)
- D. Be aware of communication requirements associated with pipeline start-up.
- E. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.09 Operations of pipeline system – normal shutdown from normally controlling location

- A. Be able to shutdown the pipeline in such a manner as to minimize the pressure surge created (local operating instructions)
- B. Be aware of OQ qualification requirements to monitor pressure and flowrate (Covered Tasks 105.17 and 105.18) to ensure pumps have shut down.
- C. Be aware of communication requirements associated with pipeline shutdown. (local operation procedures)
- D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.10 Operations of Pipeline System – normal shutdown from location not normally controlling

- A. Be able to shutdown pipeline in such a manner as to minimize the pressure surge created (local operating instructions)
- B. Be aware of OQ qualification requirements to monitor pressure and flowrate (Covered Tasks 105.17 and 105.18) to ensure pumps have shut down.
- C. Be aware of communication requirements associated with pipeline shutdown.
- D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.11 Operations of pipeline system – emergency pipeline shutdown

Note: this may be done either through SCADA or through a manual “panic button”

- A. Be able to define the events and/or circumstances that warrant use of the ESD device to shut down an entire pipeline system.
- B. Be able to recognize the devices and actions involved when the ESD device is activated, such as what equipment shuts down and which valves automatically close.
- C. Be able to explain what procedures should be followed after activation of an ESD or automatic shutdown (ASD). This may include determining cause, determining and implementing corrective action, assessing damage and procedures for restart of pipeline.
- D. Be able to locate the ESD device and execute the shutdown (local operating instructions)

- E. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.12 Operations of Pipeline System – emergency station shut-in

Note that this refers only to the shutting in a station without the discrete action of shutting down pipelines, although this action could result in an entire pipeline system being shut down automatically.

- A. Be able to define the events and/or circumstances that warrant use of the emergency shut-in device to shut-in a station on a pipeline system.
- B. Be able to recognize the devices and actions involved when the emergency shut-in device is activated, such as what equipment shuts down, which valves automatically close and what affect this shut-in will have on incoming and outgoing pipelines..
- C. Be able to explain what procedures should be followed after activation of an emergency shut-in or automatic shutdown (ASD). This may include determining cause, determining and implementing corrective action, assessing damage and procedures for restart of pipeline.
- D. Be able to locate the emergency shut-in device and execute the shut-in (local operating instructions)
- E. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.13 Operations of pipeline system - Unit adjustment

- A. Be able to determine when an appropriate adjustment should be made.
- B. Be able to determine if the pipeline can accommodate the pressure change resulting from the proposed unit adjustment.
- C. Be able to execute a unit adjustment
- D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.14 Operations of pipeline system - Tank Management

Note: this refers only to DOT-covered tanks, such as break-out tanks or relief tanks connected to a DOT pipeline.

- A. Be able to determine the capacity constraints for each tank within the Operator/Controller's area of responsibility (local operating procedures).
- B. Know the acceptable product types for each tank in the Operator/Controller's area of responsibility. (local operating procedures)
- C. Be aware of OQ qualification requirements for overfill protective devices – knowledge of and response to tank level alarms (Covered Tasks 105.06 and 105.07)
- D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.15 Operations of Pipeline System - Monitor communications

- A. Be able to determine current communication status.
- B. Be able to recognize when communication has failed.
- C. Be aware of the effect of a communication failure on local and remotely controlled devices.
- D. Be able to take appropriate action to resolve communication failures (local operating procedures).
- E. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.16 Operations of Pipeline System - Monitor leak detection and line integrity

- A. Be aware of what is meant by and be able to utilize the periodic review of the over/shorts of Linefill Sheet.
- B. Be aware of OQ qualification requirements to monitor pressures and flow rates within desired ranges. (Covered Tasks 105.17 and 105.18)
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.17 Operations of Pipeline System - Monitor flow rates

- A. Be able to identify the current flow rate for each location within the Operator/Controller's area of responsibility.
- B. Be able to recognize acceptable and unacceptable flow rate values for the current operating conditions, especially during start-up and shutdown (local operating procedures)
- C. Be able to determine and execute corrective action when the flow rate values do not meet the expected value under current operating conditions. (local operating procedures)
- D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
- E. DOT Part 195 Sec: 402c9, 402d, 402e & 408

105.18 Operations of Pipeline System – Maintain pressures within allowable limits

- A. Know the maximum operating pressure policy, maximum operating pressures and minimum pressure requirements for each station and pipeline within the Operator/Controller's area of responsibility
- B. Be able to use the pressure control valve to control pressure within allowable limits along the pipeline.
- C. Be able to monitor pipeline pressures during start-up and shutdown.
- D. Be aware of how unit operation, valve operation, pipe diameter changes, and DRA affect pressure along the pipeline.
- E. Be able to recognize when pressures are in excess of MOP and take the appropriate corrective action to remedy the situation
- F. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.19 Operations of Pipeline System - Manually or remotely open or close valves

- A. Be able to determine the appropriate valve to open or close
- B. Be aware of and be able to execute any preparatory activity related to this action, such as notification, completion of proper forms, etc..
- C. Be able to execute the action
- D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.20 Operations of Pipeline System – Operating pressure test

- A. Be able to perform a running and a static pressure test of a pipeline system when appropriate, such as after a pipeline tie-in, pipeline relocation, slack line condition (local operating instructions).
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

105.21 Operate pressure relieving devices for launching and receiving facilities

- A. Be able to inspect device to insure that a pressure-relieving device exists capable of safely relieving pressure in the barrel
- B. Be able to determine the pressurized or non-pressurized status of the launch/receiving tube.
- C. Be able to relieve pressure prior to opening the launching/receiving device.

1. Be able to isolate the launcher/receiver from mainline operations, using lockout-tagout procedures as necessary.
 2. Be able to recognize and identify drain-valves and vent-valves.
 3. Be able to safely relieve the pressure and open the device door
- D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

106.01 Maintain and repair power valve actuators

- A. This includes all non-manual valve actuators such as pneumatic, hydraulic, electro-hydraulic and electric on all types of valves (double block and bleed, control, ball, gate)
- B. Repair or adjust valve (manufacturers' information)
1. Confirm the need for repair and/or adjustment of actuator with Operations
 2. Be able to identify the actuator type
 3. Be able to assess what is required to repair and/or adjust actuator
 4. Comply with all local procedures such as permitting and notifications
 5. If valve is under line pressure, understand how internal pressure will affect the valve maintenance activity
 6. If actuator is electro-hydraulic, be able to replace filter
 7. Be able to make adjustments to meet local operating requirements if required. For instance, either close on torque or close on mechanical limit.
 8. Be able to identify faulty components and replace or repair
 9. Be aware of OQ qualification requirements to lubricate an actuator (Covered Task 106.02)
 10. Be able to check stroke of valve to verify full open-close range
 11. Be aware of OQ qualification requirements for testing of instrument control loops (Covered Tasks 106.07 and 106.08)
 12. Be able to return valve and actuator to service
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

106.02 Lubricate valve actuators

- A. Lubricate actuator
1. Be able to identify type of lubricant used in actuator
 2. Be aware of lubricant fill and drain points
 3. Be able to drain oil from actuator body
 4. Be able to fill to actuator body according to manufacturer's specifications
 5. If actuator contains oil, be able to change oil and replace filter according to manufacturer's specifications
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

106.03 Lubricate valves

- A. Lubrication and/or externally applied packing (manufacturers' manual)
1. Be able to identify the type of lubricant and/or packing materials for the specific valve
 2. Be able to locate lubricant and/or externally applied packing injection ports
 3. Be able to safely use proper packing and/or lubricating equipment (example: a high-pressure packing gun).
 4. Be able to identify and use specified packing and/or lubricating material as required by manufacturer instructions.
 5. Be able to return valve to service.

- B. Know proper company documentation procedures.
- C. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

106.04 Repair valves

- A. Repair all valves (manufacturers' information)
 - 1. Be aware of OQ qualification requirements to repair or replace pipeline components (Covered Task 104.14)
 - 2. Be aware of OQ qualification requirements to lubricate valves (Covered Task 106.03)
 - 3. Be able to identify valve type and manufacturer
 - 4. Be able to disassemble valve, clean and inspect valve internal components in accordance with manufacturer's instructions.
 - 5. Be able to repair or replace failed or worn components
 - 6. Be able to reassemble valve and return to service
 - 7. If actuator needs repair or adjustment, be aware of OQ qualification requirements (Covered Task 106.01)
 - 8. Know proper documentation procedures
- B. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

106.05 Overpressure safety devices - Inspect, test and calibrate relief valves

- A. Note that this covered task includes thermal relief valves and full flow relief valves which are on DOT piping or DOT tanks (see API 510 sec 6.6)
- B. Be aware of OQ qualification requirement to repair or replace pipeline components (Covered Task 104.14)
- C. Comply with local permitting and notification procedures
- D. Be able to understand and use the correct information necessary to identify the valve location
- E. Be able to determine if valve is under internal pressure and know what effect internal pressure will have on the inspection, testing and calibrating activity
- F. Be aware of the effect that the inspection, testing and calibrating activity will have on the operation of the pipeline system, especially with full flow relief valves
- G. Be able to identify valve type and manufacturer
- H. Be able to verify the valve number and nameplate data
- I. Be able to test and calibrate valve
 - 1. Be able to isolate relief valve
 - 2. Be able to verify correct relief pressure setting
 - 3. Be able to adjust setting for relief pressure as necessary.
 - 4. Be able to verify actual relief pressure setting
- J. Be able to visually inspect valve for external leaks using visual or gas detection equipment
- K. Be able to apply locking device or security seal to relief valve and associated isolation valves as required, returning isolation valves to the open position
- L. Know proper documentation procedures
 - 1. Local documentation requirements
 - 2. Company requirements for DOT documentation
- M. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

106.06 Overpressure safety devices - pressure switches and transmitters

- A. Be aware of OQ qualification requirements to repair or replace pipeline components (Covered Task 104.14)

- B. Be able to identify type, manufacturer and application of the pressure switch or pressure transmitter.
 - C. Be able to inspect, test and calibrate pressure switches (manufacturer's instructions)
 - D. Be able to inspect, test and calibrate pressure transmitters (manufacturer's instructions)
 - E. Be able to verify that all alarms (redundant, shutdown) associated with the transmitter or switch are sounded when the pressure switch or transmitter is activated (whole system check)
 - F. Be able to return pressure switch or transmitter to service
 - G. Know proper procedures for documentation
 - H. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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106.07 Pressure limiting devices - Inspect, test and calibrate mechanical control valves

- A. Note that this covered task includes mechanical pressure limiting devices which are on DOT piping or DOT tanks (see API 510 sec 6.6)
 - B. Be aware of OQ qualification requirement to repair or replace pipeline components (Covered Task 104.14)
 - C. Comply with local permitting and notification procedures
 - D. Be able to understand and use the correct information necessary to identify the valve location
 - E. Be able to determine the operating conditions that will effect, and to what extent they will modify, inspection, testing and calibrating activities
 - F. Be aware of the effect that the inspection, testing and calibrating activity will have on the operation of the pipeline system
 - G. Be able to identify valve type, valve number and name plate data
 - H. Be able to test and calibrate valve (manufacturer's instructions)
 - 1. Be able to isolate valve for maintenance
 - 2. Be able to verify correct pressure setting
 - 3. Be able to adjust setting for pressure
 - 4. Be able to verify actual pressure setting after adjustment
 - I. Be able to visually inspect valve for external leaks using visual or gas detection equipment
 - J. Be able to apply locking device or security seal to control valve and associated isolation valves as required, returning isolation valves to the open position (local procedures)
 - K. Know proper documentation procedures
 - 1. Local documentation requirements
 - 2. Company requirements for DOT documentation
 - L. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
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106.08 Pressure Limiting Devices - Inspect, test and calibrate electronic/electro-hydraulic control loops

- A. Note that this covered task includes electro-hydraulic control valves and their associated control loops which are on DOT piping or DOT tanks (see API 510 sec 6.6)
- B. Be aware of OQ qualification requirement to repair or replace pipeline components (Covered Task 104.14)
- C. Comply with local permitting and notification procedures
- D. Be able to understand and use the correct information necessary to identify the valve and pressure transmitter location and adjust set point
- E. Be able to determine the operating conditions that will effect, and to what extent they will modify, inspection, testing and calibrating activities
- F. Be aware of the effect that the inspection, testing and calibrating activity will have on the operation of the pipeline system
- G. Be able to identify valve actuator and pressure transmitter type
- H. Be able to verify valve number, manufacturer, as well as name plate data on valve and actuator

- I. Be able to test and calibrate valve actuator (manufacturer's instructions)
 - 1. Be able to isolate valve for maintenance
 - 2. Be able to verify correct pressure setting
 - 3. Be able to adjust setting for correct pressure as necessary
- J. Be able to visually inspect valve and actuator for external leaks using visual or gas detection equipment
- K. Under no flow conditions, adjust actuator travel as needed (via zero & span adjustment) to prevent load being applied to stem when in full open or full closed position. Attach pressure source to pressure transmitter and adjust pressure to a value greater than the set point, then monitor action of control valve to ensure proper travel
- L. Under flow conditions, adjust set point lower than the current process, then monitor that process to ensure that it matches the set point. Reset set point back to correct set point if necessary
- M. Know proper documentation procedures, including documentation of results on chart recorder and DOT forms
 - 1. Local documentation requirements
 - 2. Company requirements for DOT documentation
- N. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.

106.09 Overfill protective devices – repair and replacement

- A. Be aware of OQ qualification requirement for knowledge of tank level alarms (Covered Task 105.06)
- B. Be able to identify type and manufacturer of overfill protective devices
- C. Be able to maintain all parts of overfill protective systems external to tanks
- D. Be able to recognize and respond to abnormal operating conditions that might be encountered when performing this covered task.
- E. Manufacturer's Instructions & Local Operating Procedures.