West Coast Gas Company, Inc.

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07 October 2016

Kenneth Bruno
Program Manager
Gas Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

RE: Response to May 9-11, 2016 Audit Findings Letter dated September 4, 2016

Dear Mr. Bruno,

Following are West Coast Gas Company Inc.'s response to the SED Probable Violations and Areas of Concern /Observations / Recommendations.

If you have any questions, please feel free to contact me at 916-364-4100, Monday through Friday, 7 am to 3:30 pm.

Sincerely,

Mark Williams

Mark Williams
President

cc: Banu Acmis
Jason McMillian

SUMMARY OF INSPECTION FINDINGS

I. Probable Violations

Title 49, Code of Federal Regulations (CFR), §192.805 Qualification program

Each operator shall have and follow a written qualification program. The program shall include provisions to:
(a) Identify covered tasks;
(b) Ensure through evaluation that individuals performing covered tasks are qualified;
(c) Allow individuals that are not qualified pursuant to this subpart to perform a covered task if directed and observed by an individual that is qualified;
(d) Evaluate an individual if the operator has reason to believe that the individual's performance of a covered task contributed to an incident as defined in Part 191;
(e) Evaluate an individual if the operator has reason to believe that the individual is no longer qualified to perform a covered task;
(f) Communicate changes that affect covered tasks to individuals performing those covered tasks;
(g) Identify those covered tasks and the intervals at which evaluation of the individual's qualifications is needed;

1. SED reviewed the covered task list provided in the OQ plan, titled "OQ 11.1: Identified Covered Tasks," as well as the subject matter expert survey that was used to create the covered task list.

   SED identified the following covered tasks that are not listed in the covered task lists in WCG's OQ Plan.

   - Leak repair by clamp
   - Valve Maintenance: repair, replace, and/or refurbish a valve

   SED noted that WCG must add the aforementioned tasks and all other unlisted tasks that WCG currently performs to its covered task list as per Title 49, CFR §192.805 (a) & (g).

   Additionally, WCG must establish training and evaluation methods suitable to ensure its employees and contractors are qualified to perform the newly added covered tasks as per Title 49, CFR §192.805 (b). Training material and testing must include task specific Abnormal Operating Conditions (AOC) for the newly added covered tasks.

   Moreover, WCG must communicate with WCG's personnel about changes to the OQ program which affect the individuals performing such tasks as per Title 49, CFR §192.805 (f).

   Please provide SED with the revised sections of the OQ Plan, training & evaluation program along with reevaluation interval determined for the newly added covered tasks that address the identified deficiencies.

   WCG RESPONSE
   During the audit performed onsite at WCG on May 9-11, 2016, WCG agreed with the above audit finding. WCG has provided the revised section OQ 11.1, revision date May 1, 2016 (at page 88) with the required changes. The revised list of Identified Covered Tasks includes two additional covered tasks including "valve corrective maintenance" and "install mechanical clamps and sleeves, bolted". See classroom training modules 6.1 and 6.9 listed in OQ11.4, revision date May 1, 2016, at page 99. The field evaluation program includes OQ 723-A and OQ 747 (see attached). The reevaluation interval(s) are respectively: 3 years for valve corrective maintenance (see OQ 11.2 revision date May 11, 2016, at page 91); and 3 years

for Install Mechanical Clamps and Sleeves, bolted (see OQ 11.2 Revision Date May 11, 2016, at page 92).

2. Title 49, CFR, §192.805 Qualification Program states in part:

"(d) Evaluate an individual if the operator has reason to believe that the individual's performance of a covered task contributed to an incident as defined in Part 191;
(e) Evaluate an individual if the operator has reason to believe that the individual is no longer qualified to perform a covered task;…"

WCG Procedure "OQ-6: Individual is No Longer Qualified to Perform a Covered Task" states, "if an individual has lost qualifications to perform a covered task or tasks, the individual may be re-evaluated by WCG and gain approval once more."

SED noted that the above mentioned procedure is overly vague, and does not include a requirement to retrain, either fully or in part, an individual who is deemed no longer qualified to perform a covered task.

SED determined that WCG must state in greater detail the procedure to ensure adequate re-qualification of an individual whose qualifications had previously been brought into doubt as per Title 49, CFR §192.805 (e), especially if the individual may have contributed to an accident or incident involving the pipeline facilities as per Title 49, CFR §192.805 (d). WCG must consider providing additional or refresher classroom and/or field training necessary for the individuals to obtain qualifications to be able perform the covered tasks successfully.

Please provide SED with the revised version of the OQ Program procedures which address the deficiency identified above.

WCG RESPONSE

WCG OQ Plan at section OQ 3 revision date May 20, 2016 at page 9 includes the section "Frequency of Re-Training / Re-Evaluations. On page 10, it states,

"Successful completion of the knowledge based evaluation, either written or oral, requires a score of 80%. All of the required skills and abilities must be passed or retraining and successful evaluation must be completed on those that did not pass." It also states, "At the Operations Manager's discretion, WCG will provide remedial training such as on-the-job training or repeating the GTI Training Module for the failed tasks."

Please note that WCG OQ5, "Response to An Incident" was extensively revised with the current revision date of May 20, 2016. Section OQ 5 describes the investigation that WCG would perform post-incident, and the corrective actions that would be taken by the Operations Manager. At page 16, the May 20, 2016 revision of WCG OQ 5 states the following:

"If remedial training is determined necessary, the Operations Manager will ensure that it is provided. He will direct that the individual to repeat the appropriate GTI Training Module(s), take and pass the written test, and ensure that the appropriate Field Evaluation is conducted, passed, and documented. If new or revised training is necessary, the Operations Manager will use his discretion to determine whether to revise the WCG training, engage a third party to provide the training, or determine other appropriate solutions."

WCG transmitted the OQ Revisions dated May 20, 2016 by electronic mail to Ms. Banu Acimis and Mr. Jason McMillan on May 20, 2016 time stamped at 3:23 pm.

II. Areas of Concern/ Observations/ Recommendations

1. Title 49, CFR, §192.803 states in part:

   "Qualified means that an individual has been evaluated and can:
   (a) Perform assigned covered tasks; and
   (b) Recognize and react to abnormal operating conditions."

   SED reviewed the OQ plan provided by WCG, as well as its computer-based modules that WCG uses as training materials, and the forms WCG uses during field tests to qualify individuals on certain tasks. SED found no comprehensive list of task-specific abnormal operating conditions (AOCs) within the OQ plan since most of the training modules reviewed only contained a single AOC related to a task.

   SED is concerned that the AOCs presented during training as well as the AOCs reviewed during evaluation are not task specific. Therefore, SED recommends that WCG compile a more comprehensive list of AOCs that are specific to the tasks that qualified individuals must learn to be able to recognize and react to them while performing related covered tasks.

   SED also noted that general AOCs listed in WCG's Training Module 10.2 should also be incorporated into the OQ Plan. Additionally, task specific AOCs that appear on the new field forms should be expanded and employees should be trained accordingly.

   Moreover, SED recommends these task-specific AOCs be incorporated into the training and evaluation portions of WCG's OQ program.

   Please provide SED with list of AOCs that are specific to each covered task and related sections of the OQ Plan that address the deficiencies identified above.

   WCG RESPONSE

   AOCs pertaining to specific covered tasks are incorporated in the Field Evaluation Forms, see attached evaluation forms for Evan Rahilly.

   In addition, GTS has developed an AOC Quiz to use in training and evaluation, see attached.

2. SED noted that since WCG's training modules 10.1 & 10.2 provide essential information for natural gas, general abnormal operating conditions, and emergency preparedness; WCG should provide these training modules to all employees in the company.

   WCG RESPONSE

   The WCG OQ Plan includes OQ 3 revision date May 20, 2016, at page 10 which states:

   "WCG has adopted the Gas Technology Institute (GTI) Natural Gas Field Skills Training as its source of training for Operator Qualification assessments. Natural gas field skills training will be used for all workers that are performing covered tasks. The standardized training materials are designed for a quick turn-around with basic field skill training for utility and contractor staff. A list of the classroom training modules can be found in OQ 11.4: WCG GTI Classroom Training Modules.

3. WCG informed SED that it is in the process of hiring and training a new employee for its Castle gas distribution system. Please provide operator qualification records for the employee with the list of covered tasks that he is responsible for performing along with evaluations records.

WCG RESPONSE

WCG hired Evan Rahilly for Castle. He is currently completing the GTI Program and will be finished by the end of October. Attached are his completed GTI tests.

He is OQ qualified for the following tasks; Inside & Outside Gas Leak Investigation, Electrofusion, Damage Prevention and Locating Underground Pipelines. OQ FE forms attached.

WEST COAST GAS
INCORPORATED

FORM OQ 747: VALVE CORRECTIVE MAINTENANCE

Supersedes All Previous Dates

Start Date: September 26, 2016

Canceling Date: New

PARTICIPANT: **DATE:**

LOCATION OF EVALUATION:

INSTRUCTIONS FOR EVALUATOR: Observe the following performed independently by the participant:

1) Identified requirements which include corrective maintenance of a valve.

2) Select the correct equipment and perform the corrective maintenance independently.

3) Observe abnormal operating conditions and record documentation.

STEPS TO PERFORM	EVALUATION CRITERIA (PERFORMANCE ACCEPTABLE IF:)	PASS	FAIL	NA
1) Gather appropriate procedures and equipment	Val-Tex 1400 Hydraulic Lubrication Gun (Flush)(Grease), Valve Wrenches, Pipe Wrenches, Leak Soap, leak detector, packing, traffic cones/barricades, traffic permit, PPE. WCG Maintenance procedure 747. Maps/plans for the right system.			
2) Identifies the valve.	Can explain how they know they are at the right valve and can show you which one it is on the map and by number.			
3) Locates the valve.	Can find the valve in the field by using map, measurements, and physical points of reference.			
4) Verifies the valve position.	Can tell you if the as-found position is open or closed. If performing Flushing/greasing/exercising, verifies full open position.			
5) Communicates with operating personnel.	Notifies operating personnel about plan of action.			
6) Performs corrective maintenance, as applicable.	Assesses what is needed. Takes action such as clean out valve box, replace broken valve box, adjust or replace packing or seals, flush/lubricate/exercise valve, replace valve following Maintenance 747 in detail, replace steel valve with section of poly and poly valve including transitions and couplings.			
7) Notifies operating personnel, completes forms.	Records actions taken on Form 747 for the system being worked.			
ABNORMAL OPERATING CONDITIONS QUESTIONS ASKED	**PARTICIPANTS REPONSES /REACTIONS TO AOCs DESCRIBED**	**PASS**	**FAIL**	**NA**
1) What AOCs might occur or be found during this task?	Valve buried or paved over. Unable to locate valve. Mismapped or wrong records. Wrong valve wrench or key. Unable to operate valve. Valve broken or unrepairable. No lubricant/wrong lubricant. No way to add lubricant. Inadequate tools. Valve box flooded. Hazardous leak in valve box. Vehicle or other obstacle. Permits needed in traffic lanes. No valve packing available. Seepage or leakage near the fitting or the coupler after the repair.			
2) What if the maps/records are incorrect?	Make a note of what error you found, mark up the map/record. Notify the field supervisor and/or the Operations Manager so the error in the maps/records can be fixed back in the office.			
3) What would you do if valve fitting is seeping or leaking near the coupler after the repair?	Inspect the coupler washer and the fitting for defects or debris. If needed, tighten the coupler back on to the button head fitting.			

EVALUATION RESULTS: QUALIFIED ☐ / NOT QUALIFIED ☐

NOTES:

PARTICIPANT'S SIGNATURE:

EVALUATOR'S SIGNATURE: **TITLE** **DATE**

WEST COAST GAS
INCORPORATED

FORM OQ 723-A: INSTALL 500 SERIES REPAIR CLAMPS

Supersedes All Previous Dates

Start Date: September 26, 2016

Canceling Date: **May 20, 2016**

PARTICIPANT: **DATE:**

LOCATION OF EVALUATION:

INSTRUCTIONS FOR EVALUATOR: Observe the following performed independently by the participant:

1) Identify requirements for conducting the installationf of 500 Series repair clamps.

2) Select the correct equipment and perform the installation properly.

3) Observe abnormal operating conditions and record documentation.

STEPS TO PERFORM	EVALUATION CRITERIA (PERFORMANCE ACCEPTABLE IF:)	PASS	FAIL	NA
1) Select the task procedure(s) and appropriate equipment	Select appropriate equipment, PPE, correct size leak clamp, small tools. Leak soap.			
2) Prepares surfaces.	Clean the main and/or service line a thoroughly as conditions permit. Make sure all burrs and debris are removed.			
3) Installs Clamp.	Slip bolt heads out of bar and fit clamp on pipe centering the clamp over the damaged area. Slip bolt heads back into bar/lug. Rotate clamp in direction indicated by arrow on clamp band until gasket overlap is smoothed out.			
4) Apply proper torque.	Tighten evenly, alternating between nuts. Use 35 foot-lbs for 2"-3.5" diameter pipe. Apply 50 ft-lbs to 4"-8" diameter pipe.			
ABNORMAL OPERATING CONDITIONS QUESTIONS ASKED	**PARTICIPANTS REPONSES /REACTIONS TO AOCs DESCRIBED**	**PASS**	**FAIL**	**NA**
1) What AOCs might occur or be found during this task?	Flammable atmosphere; Blowing or escaping gas; smelling or hearing a gas leak, unable to obtain a secure leak tight fit between pipe and clamp.			
2) If the leak clamp cannot provide a leak tight seal, what should you do?	Notify Field Supervisor or Operations Manager. Determine whether additional area should be isolated or shutdown. Determine other repair method to use. Notify customers of gas outage, if applicable.			
3) If there is a pipeline fire, what are the immediate actions?	Call 911; Evacuate people and block the area; Activate the WCG call list; Ask for help; Make plans to isolate the leak by shutting off the area or bringing it under control; Shut off customers in the area; Check the surrounding area for migrating gas; See WCG Emergency Plan for detailed procedures.			
4) What would you do if a Grade 1 leak was identified?	Take continuous action to protect life and property; Establish open communications with the Operations manager; Determine where is the gas and where is it migrating to; Check surrounding areas and buildings; Eliminate the gas source by shutting off gas meter, service line or other sources; Address repairs for Grade 1 leak.			

EVALUATION RESULTS: QUALIFIED ☐ / NOT QUALIFIED ☐

NOTES:

PARTICIPANT'S SIGNATURE:

EVALUATOR'S SIGNATURE: **TITLE** **DATE**

WEST COAST GAS
INCORPORATED

FORM OQ AOC-Q: ABNORMAL OPERATING CONDITIONS QUIZ, Page 1

Supersedes All Previous Dates

Start Date: September 23, 2016

Canceling Date: New

PARTICIPANT: **DATE:**

LOCATION OF EVALUATION:

INSTRUCTIONS FOR EVALUATOR: Review the following AOCs with the participant and record the results.

ABNORMAL OPERATING CONDITIONS QUESTIONS ASKED	PARTICIPANTS REPONSES /REACTIONS TO AOCs DESCRIBED	PASS	FAIL	NA
1) What AOCs might occur or be found during this task?				
2) What should be done if there are multiple buildings involved with a gas leak emergency?	If multiple buildings are involved, contact fire/police departments for evacuation and ventilation assistance.			
3) You are re-coating the pipe. What would you do if the exposed pipe was damaged or if corrosion was more than small areas of pitting?	Stop the coating work. Alert Supervisor or Operations Manager. Provide photos or description of amount of corrosion or damage.			
4) What would you do if you noticed that maps and records were wrong as you were starting a tapping procedure?	Stop the procedure; Make safe; Re-assess the situation; Ask for assistance before proceeding.			
5) True/False: Before doing plastic fusion, it is important to protect the oxide skin of the pipe from damage.	**FALSE:** If the oxide skin is not completely removed this can lead to a fused joint which is not homogeneous and may leak			
6) What should you do to avoid static current on a pipeline?	Carefully ground the tools and pipe; Use exterior antistatic liquid or wrap to dissipate the induced static present on the exterior of the pipe prior to commencement of work.			
7) What should you do if the pipe to soil is less than -0.850 volts?	Follow instruction in OME Corrosion Control 465/459 and notify the Operations Manager if unable to resolve problem.			
8) True/False: WCG should rely upon the rectifier gauges to verify DC volts.	**FALSE** Use the Multimeter/Fluke to verify DC voltage; Compare to the gauge readings.			
9) What action should you take if you detect a low pipe to soil reading?	Inspect for electrical isolation using OME Corrosion Control 481; Inspect for sings of atmospheric corrosion; If neither is found, determine if the rectifier setting should be increased to achieve -0.850 volts; Notify the Operations Manager.			
10) What steps do you take when you discover a contractor performing work without a locate?	**1)** Contact the job foreman and advise them to stop work and contact 811 for a locate. **2)** If they refuse and if safety is a concern, call law enforcement authorities to enforce stop work and notify the Operations Manage.			
11) When you arrive at the locate, the designated area with white paint does not match the excavation site, what should you do?	**1)** Contact 811 and notify them for this ticket. **2)** Approach the job foreman to determine the work area for the locate. Advise them to revise their work ticket with 811. **3)** Notify the Operations Manager.			
12) True/False: If the pipe squeezer is used per manufacturer's directions the pipe can never be damaged and can be placed immediately back into operation.	**FALSE** Always visually inspect the pipe for signs of mechanical damage; If damaged, notify the Operations Manager.			

WEST COAST GAS
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FORM OQ AOC-Q: ABNORMAL OPERATING CONDITIONS QUIZ, Page 2

Supersedes All Previous Dates

Start Date: September 23, 2016

Canceling Date: New

ABNORMAL OPERATING CONDITIONS QUESTIONS ASKED	PARTICIPANTS REPONSES /REACTIONS TO AOCs DESCRIBED	PASS	FAIL	NA
13) If you are unable to stop the flow of gas using the pipe squeezer, what step would you take next?	In an emergency situation, obtain the map sheets to determine how to isolate the area by closing specific key valves; Notify the Operations Manager.			
14) You are reading meters and notice the wrap / coating on the gas riser is damaged, what should you do?	Visually check all exposed piping on the MSA for signs of damages to the coating. Check for disbonded coating with visible rust and pitting of the metal underneath. Follow Corrosion Control 481.			
15) If blowing gas is detected during a leak survey, what actions should be taken?	Protect human life and property; Evacuate buildings and surrounding areas; Call 911 to get support with evacuation and street closure; Perform leakage survey to sources and nearest buildings to investigate; Refer to WCG Emergency Plan for detailed procedures.			
16) If there is a pipeline fire, what are the immediate actions?	Call 911; Evacuate people and block the area; Activate the WCG call list; Ask for help; Make plans to isolate the leak by shutting off the area or bringing it under control; Shut off customers in the area; Check the surrounding area for migrating gas; See WCG Emergency Plan for detailed procedures.			
17) If the leak repair clamp you are installing cannot provide a leak tight seal, what should you do?	Notify Field Supervisor or Operations Manager. Determine whether additional area should be isolated or shutdown. Determine other repair method to use. Notify customers of gas outage, if applicable.			
18) You notice that WCG maps/records have a mistake, what do you do?	Make a note of what error you found, mark up the map/record. Notify the field supervisor and/or the Operations Manager so the error in the maps/records can be fixed back in the office.			
19) What would you do during valve maintenance if the valve fitting is seeping or leaking near the coupler after the repair?	Inspect the coupler washer and the fitting for defects or debris. If needed, tighten the coupler back on to the button head fitting.			
20) TRUE or FALSE? An Abnormal Operating Condition (AOC) is defined as a condition identified by the operator that may indicate a malfunction of a component or deviation from normal operations that may: Indicate a condition exceeding design limits or result in a hazard(s) to persons, property or the environment:	TRUE			
21) AOCs are:	□ Task specific □ Generic □ Both task specific and generic			
22) Flames shooting out of an appliance would be a(n) _____ of a Fire or Explosion AOC.	□ Action □ Cause □ Indicator			
23) Verifying charts, telemeters or gauge readings with a second gauge or instrument would be a(n) _____ for an Over Pressurization AOC.	□ Action □ Cause □ Indicator			

WEST COAST GAS
INCORPORATED

FORM OQ AOC-Q: ABNORMAL OPERATING CONDITIONS QUIZ, Page 3

Supersedes All Previous Dates

Start Date: September 23, 2016

Canceling Date: New

ABNORMAL OPERATING CONDITIONS QUESTIONS ASKED	PARTICIPANTS REPONSES /REACTIONS TO AOCs DESCRIBED	PASS	FAIL	NA
24) Actions to take for open or damaged vaults/manholes include which of the following?	(Check all that apply) □ Replace cover or install safety cones and barricade area to make safe □ Standby as directed to prevent traffic or pedestrian accidents/injuries □ Check supply conditions to customers in surrounding area			
25) Sealing off atmosphere by ice or snow would be a(n) _____ for an Under Pressure/No Pressure AOC.	□ Cause □ Action □ Indicator			
26) What would you do if a Grade 1 leak was identified in the course of your work?	Take continuous action to protect life and property; Establish open communications with the Operations manager; Determine where is the gas and where is it migrating to; Check surrounding areas and buildings; Eliminate the gas source by shutting off gas meter, service line or other sources; Address repairs for Grade 1 leak.			
27) Requesting an immediate locate of company facilities would be a(n) _____ for a Damage to Company Facilities AOC.	□ Cause □ Action □ Indicator			
28) What should you do if the odor complaint you investigate is a leak on the customer's house pipeline due to a faulty appliance and needs to be repaired?	The faulty appliance will be turned off, separated from the gas supply by disconnection or valve shut off; Only reconnect when proper repair or replacement is provided by the customer.			

EVALUATION RESULTS: QUALIFIED ☐ / NOT QUALIFIED ☐

NOTES:

PARTICIPANT'S SIGNATURE:

EVALUATOR'S SIGNATURE: **TITLE** **DATE**

WEST COAST GAS
INCORPORATED

FORM OQ GEN C-A: INSIDE GAS LEAK INVESTIGATION

Supersedes All Previous Dates

Start Date: January 4, 2016

Canceling Date:

PARTICIPANT: EVAN RAHILLY **DATE:** 9-12-2016

LOCATION OF EVALUATION: 1910 CUSTOMER CARE WAY (BUILDING 765) CASTLE

INSTRUCTIONS FOR EVALUATOR: Observe the following performed independently by the participant:

1) Use measurement equipment to check for potential leaks.

2) Select the correct equipment and perform the correct equipment check.

3) Recognize and react to abnormal operating conditions and record documentation.

STEPS TO PERFORM	EVALUATION CRITERIA (PERFORMANCE ACCEPTABLE IF:)	PASS	FAIL	NA
1) Identify the equipment and materials needed	Facility maps; Traffic safety vest; Gas leak reports; General pipeline repair form; Combustible gas indicator (CGI); barhole equipment; Roto hammer; Generator.	✓		
2) Demonstrate focus on protecting safety of public and employees first	Follow OME Emergencies 615	✓		
3) Demonstrate how to properly use the CGI	Can demonstrate how to start and perform the self test calibration	✓		
4) Perform leakage investigation	Demonstrate proper way to perform a floor to ceiling leak survey at the entrance threshold.	✓		
5) Show how to initiate precautionary actions	Correct demonstration of implementing the Emergency Plan; Do not operate any electrical switches, cell phones, etc.	✓		
6) Show knowledge of when to evacuate a building	Evacuate all building inhabitants whenever the gas in air percentage is at or in excess of 1.5%.	✓		
7) Eliminate all ignition sources within capabilities		✓		
8) Knowledge of leak classification criteria capabilities	Grade Classifications 1 through 3	✓		
9) Complete all leak repairs		✓		
ABNORMAL OPERATING CONDITIONS QUESTIONS ASKED	**PARTICIPANTS REPONSES /REACTIONS TO AOCs DESCRIBED**	**PASS**	**FAIL**	**NA**
1) What AOCs might occur or be found during this task?	Flammable atmosphere; Blowing or escaping gas; Fire on a pipeline; Under odorization; Under and over pressure; Unplanned shut off of gas; Water or other liquids in the pipeline; Missing/broken tracer wire; Multiple leaks; Erroneous reading from gas detection equipment; Inoperability/failure of a pipeline component.	✓		
2) What should be done if there are multiple buildings involved?	If multiple buildings are involved, contact fire/police departments for evacuation and ventilation assistance.	✓		

EVALUATION RESULTS: QUALIFIED ☑ / NOT QUALIFIED ☐

NOTES: Evan did a great job taking his time and being thorough while going through blding #765.

PARTICIPANT'S SIGNATURE: E R

EVALUATOR'S SIGNATURE: [signature] **TITLE** Field Supervisor **DATE** 9-12-2016 (9-12-2016)

WEST COAST GAS
INCORPORATED

FORM OQ GEN C-B: OUTSIDE GAS LEAK INVESTIGATION

Supersedes All Previous Dates

Start Date: January 4, 2016

Canceling Date:

PARTICIPANT: EVAN RATHILY **DATE:** 9-12-2016

LOCATION OF EVALUATION: 1910 CUSTOMER CARE WAY (BUILDING 765) CASTLE

INSTRUCTIONS FOR EVALUATOR: Observe the following performed independently by the participant:

1) Identified requirements for investigating a reported or discovered outside gas leak of the WCG lines.

2) Select the correct equipment and perform the outside gas leak investigation properly.

3) Observe abnormal operating conditions and record documentation.

STEPS TO PERFORM	EVALUATION CRITERIA (PERFORMANCE ACCEPTABLE IF:)	PASS	FAIL	NA
1) Select the task procedure(s) and appropriate equipment	Select appropriate equipment.	✓		
2) Field startup of equipment	Check filters, probes, fuel supply, batteries, etc.; Perform operational check as required by manufacturer; Perform periodic calibration checks.	✓		
3) Perform leakage investigation	Mark customer/caller contact, if possible; Review documentation to determine where the facilities are located; Check for the presence of combustible gas throughout the area (e.g. Electric, telephone, sewer and water system manholes); Cracks in pavement and sidewalks; Other locations that provide an opportunity for finding gas leaks; Grade and classify the leak if applicable.	✓		
4) Initiate precautionary actions if leak detected, based on leak grade/classification	Implement emergency response actions; Evacuate; Secure the area; Eliminate source of ignition; Request emergency services; Continue to monitor and determine the leak spread.	✓		
ABNORMAL OPERATING CONDITIONS QUESTIONS ASKED	**PARTICIPANTS REPONSES /REACTIONS TO AOCs DESCRIBED**	**PASS**	**FAIL**	**NA**
1) What AOCs might occur or be found during this task?	Flammable atmosphere; Blowing or escaping gas; Fire on a pipeline; Under odorization; Under and over pressure; Unplanned shut off of gas; Water or other liquids in the pipeline; Missing/broken tracer wire; Multiple leaks.	✓		
2) What would you do if water or other liquids were suspected in a customer's service line?	Follow Normal Operations 605-B5 and purge the service line according to procedure; Perform a follow up leak survey prior to restoring meter set to service.	✓		
3) when should you consider evacuating a building?	Whenever the gas in air percentage is > 30% of LEL; Whenever the gas in air percentage is in excess of 1.5%	✓		

EVALUATION RESULTS: QUALIFIED ☑ / NOT QUALIFIED ☐

NOTES: Evan was very pre-pared for todays evaluations. He was very Knowlegable on what was expected of him. He is a great addition to W.C.G.

PARTICIPANT'S SIGNATURE: E. Rathily

EVALUATOR'S SIGNATURE: [signature] **TITLE** Field Supervisor **DATE** 9-12-2016

WEST COAST GAS
INCORPORATED

FORM OQ 281-B: JOINING OF PLASTIC PIPE ELECTROFUSION

Supersedes All Previous Dates

Start Date: January 4, 2016

Canceling Date:

PARTICIPANT: EVAN RATHLY **DATE:** 9-14-2016

LOCATION OF EVALUATION: EAST OF BUILDING 535 IN GRAYRL AREA

INSTRUCTIONS FOR EVALUATOR: Observe the following performed independently by the participant:

1) Identified requirements which include assembly and joining of plastic pipe by electrofusion of completed joints.

2) Select the correct equipment and perform the electrofusion independently.

3) Observe abnormal operating conditions and record documentation.

STEPS TO PERFORM	EVALUATION CRITERIA (PERFORMANCE ACCEPTABLE IF:)	PASS	FAIL	NA
1) Select the task procedure(s) and appropriate equipment	Select appropriate equipment.	✓		
2) Verify materials, as applicable	Pipe and fittings.	✓		
3) Perform joining equipment check	Checking pipe scraping tool, pipe restraint, electrofusion processor, correctly sized equipment.	✓		
4) Select fitting, clean and inspect pipe and fittings surfaces to be fused.	Clean pipe and fittings, scrape pipe surface at point of fusion, mark stab depth on pipe wall, if applicable.	✓		
5) Set up electrofusion equipment	Install fitting, install pipe restraint, scan fitting bar code if applicable, secure processor leads.	✓		
6) Join fitting and pipe	Activate fusion processor, remove processor leads once cycle in complete, cool prior to movement.	✓		
ABNORMAL OPERATING CONDITIONS QUESTIONS ASKED	**PARTICIPANTS REPONSES /REACTIONS TO AOCs DESCRIBED**	**PASS**	**FAIL**	**NA**
1) What AOCs might occur or be found during this task?	Flammable atmosphere; Blowing or escaping gas; Fire on a pipeline; Static current on a pipeline; Odor complaint.	✓		

EVALUATION RESULTS: QUALIFIED ☑ / NOT QUALIFIED ☐

NOTES:

PARTICIPANT'S SIGNATURE: E R [illegible]

EVALUATOR'S SIGNATURE: [illegible] **TITLE** OP. MANAGER **DATE** 9-14-2016

WEST COAST GAS
INCORPORATED

FORM OQ 721: DAMAGE PREVENTION

Supersedes All Previous Dates

Start Date: January 4, 2016

Canceling Date:

PARTICIPANT: EVAN RATHILY **DATE:** 9-14-2016

LOCATION OF EVALUATION: ALL OF CASTLE AREA

INSTRUCTIONS FOR EVALUATOR: Observe the following performed independently by the participant: **1)** Participant demonstrates understanding of importance and steps involved in protecting underground facilities from damage. **2)** Select the correct equipment and perform correct equipment checks. **3)** Recognize and react to abnormal operating conditions and record documentation.

STEPS TO PERFORM	EVALUATION CRITERIA (PERFORMANCE ACCEPTABLE IF:)	PASS	FAIL	NA
1) Identify requirements	WCG must prevent damage due to excavation activities. Use the Underground Service Alert (call 811) WCG will provide temporary location marking of all buried gas facilities in an area where excavation intent has been received when a request/notice for gas facility locates has been made by the public, other companies or operators or recognition by WCG personnel, at least 24 hours before beginning excavation work.	✓		
2) At job site, verify WCG facilities have been located and marked	WITH YELLOW PAINT, FLAGS, OR LINE MARKERS.	✓		
3) Enforce damage prevention during and after excavator activities	Stand by, inspect WCG pipeline for damage. Ensure WCG pipeline is physically located prior to excavation. Ensure exposed pipeline is supported or protected during excavation. Inform excavator to stop excavation if any unusual operating activities are observed.	✓		
4) Implement damage prevention actions during excavation activities	Use hand tools only when digging within 18 inches of buried utilities. WCG will hold field meet with excavators to ensure safety of WCG owned gas facilities.	✓		
5) Recognize and react to AOCs	WE DISCUSSED NO WHITE PAINT SHOWING USA. LOCATION	✓		
6) Complete necessary documentation	Form 614	✓		
ABNORMAL OPERATING CONDITIONS QUESTIONS ASKED	**PARTICIPANTS REPONSES /REACTIONS TO AOCs DESCRIBED**	**PASS**	**FAIL**	**NA**
1) What AOCs might occur or be found during this task?	Flammable gas atmosphere; Blowing or escaping gas; Fire on a pipeline; Odor complaint; Pipe or coating damage including pipeline components; Poor compaction; Lack of pipeline support or unintended movement; Confined space; Missing/broken tracer wire; Inaccurate maps and records.	✓		
2) What can you do if excavators are working at a job site where 811 was not called?	Notify the excavator of unsafe practices; Request that the work be stopped; Ask of assistance from the Operations Manager	✓		

EVALUATION RESULTS: QUALIFIED ☑ / NOT QUALIFIED ☐

NOTES:

PARTICIPANT'S SIGNATURE: EVAN RATHILY

EVALUATOR'S SIGNATURE: _____ **TITLE** OP. MANAGER **DATE** 9-14-2016

WEST COAST GAS
INCORPORATED

FORM OQ 614: LOCATING UNDERGROUND PIPELINES

Supersedes All Previous Dates

Start Date: January 4, 2016

Canceling Date:

PARTICIPANT: RYAN RATHILY **DATE:** 9-14-2016

LOCATION OF EVALUATION: IN GOOGLE AREA AND BUILDING 1319 SERVICE LINE

INSTRUCTIONS FOR EVALUATOR: Observe the following performed independently by the participant:

1) Use line locator equipment to find underground pipeline.

2) Select the correct equipment and perform the correct equipment checks.

3) Recognize and react to abnormal operating conditions and record documentation.

STEPS TO PERFORM	EVALUATION CRITERIA (PERFORMANCE ACCEPTABLE IF:)	PASS	FAIL	NA
1) Select the right equipment and the appropriate OME procedure	Normal Operations 614, USA One Call system phone number, wallet cards, underground pipe locator.	✓		
2) Select the method for locating by direct connection or indirect connection	USED DITCH WITCH LINE LOCATOR	✓		
3) Demonstrate Ditch Witch calibration steps	See OME for calibration steps.	✓		
4) Can identify the locate area	Correctly identified the area designated by white lines.	✓		
5) Visually inspects the locate area	The participant identifies previous locate marks, evidence of the pipeline markers, evidence of other utilities, lines that might impact signal.	✓		
6) Uses Ditch Witch to locate pipelines	Evaluates signal strength and direction changes, as applicable.	✓		
7) Validates the physical locate	Checks against existing documents such as maps, construction drawing, or service cards, etc.	✓		
8) Marks the located pipeline	Using agreed upon 811 markings, using paint, flags, stakes or other appropriate marking.	✓		
ABNORMAL OPERATING CONDITIONS QUESTIONS ASKED	**PARTICIPANTS REPONSES /REACTIONS TO AOCs DESCRIBED**	**PASS**	**FAIL**	**NA**
1) What AOCs might occur or be found during this task?	Unplanned escape of gas from a pipeline; Fire or explosion, Observing potential for pipeline damage (e.g. excavation damage, excavator already working without adequate line locate performed); Reports of gas odor; Fire on a pipeline; Odor complaint; Inaccurate record and maps; Missing/broken tracer wires; Inadequate cover; Construction activity that may cause damage to pipeline; Conflict with white line and excavation site.	✓		
2) What steps to you take when you discover a contractor performing work without a locate?	**1)** Contact the job foreman and advise them to stop work and contact 811 for a locate. **2)** If they refuse and if safety is a concern, call law enforcement authorities to enforce stop work and notify the Operations Manage.	✓		
3) When you arrive at the locate, the designated area with white paint does not match the excavation site, what should you do?	**1)** Contact 811 and notify them for this ticket. **2)** Approach the job foreman to determine the work area for the locate. Advise them to revise their work ticket with 811. **3)** Notify the Operations Manager.	✓		

EVALUATION RESULTS: QUALIFIED ☑ / NOT QUALIFIED ☐

NOTES:

PARTICIPANT'S SIGNATURE: [signature]

EVALUATOR'S SIGNATURE: [signature] **TITLE** OP. MAN **DATE** 9-14-2016

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 1.1 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (4 Correct Answers)

NAME Ivan Kalilly **DATE** 9/13/16

1.1 INTRODUCTION TO OPERATOR QUALIFICATION TEST

1.0 The intent of the OQ Rule is to ensure a qualified workforce and to reduce incidents caused by human error.

- [x] TRUE
- [ ] FALSE

2.0 The OQ Rule was intended to be a one-time event.

- [ ] TRUE
- [x] FALSE

3.0 Are these covered tasks? (Check all that apply)

- [x] Installing/replacing an anode or test station
- [ ] Adjusting burner flame on a gas range
- [ ] Inspecting a furnace for a blocked flue
- [x] Patrolling gas pipelines
- [ ] Meter reading
- [ ] Checking for leaks on customer piping in a residence (meter located outside)
- [ ] Relighting customer appliances inside a home
- [ ] Bench testing of a regulator at a shop location
- [x] Visually inspecting for internal corrosion

4.0 An Abnormal Operating Condition (AOC) is a condition identified by the operator that may indicate a malfunction of a component or deviation from normal operating conditions that may: indicate a condition exceeding design limits; result in a hazard(s) to persons, property or the environment.

- [x] TRUE
- [ ] FALSE

5.0 OQ Qualified means an individual has been evaluated and can:

- [ ] Perform assigned covered tasks
- [ ] Recognize and react to abnormal operating conditions
- [x] Both of the above

PASS [X] **/ FAIL** [ ]

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 1.2 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (4 Correct Answers)

NAME [signature] **DATE** 9/13/16

1.2 OVERVIEW OF THE GAS INDUSTRY TEST

1.0 Natural gas was first discovered North America in _____.

- ☐ 1870
- ☒ 1820
- ☐ 1852
- ☐ 1780

2.0 The first use for natural gas was _________.

- ☐ Heating
- ☒ Lighting
- ☐ Firing coal plants
- ☐ Powering assembly lines

3.0 Pipelines in the late 1800s were constructed of _________.

- ☒ Wood
- ☐ Copper
- ☐ Cast iron
- ☐ Steel

4.0 Modern high pressure pipelines are constructed of high strength _________.

- ☐ Polyethylene
- ☐ Cast iron
- ☐ PVC
- ☒ Steel

5.0 Pipeline safety standards in the US are enforced by the _________.

- ☒ DOT / Office of Pipeline Safety
- ☐ PSC / Public Service Commission
- ☐ DOE / Department of Energy
- ☐ OSHA / Occupational Health and Safety Administration

PASS ☒ **/ FAIL** ☐

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 1.3 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (5 Correct Answers)

NAME Wm Palmer **DATE** 9/13/16

1.3 REGULATORY AUDITS TEST

1.0 The Office of Pipeline Safety (OPS) oversight responsibility is interstate pipelines that cross state boundaries or intrastate pipeline systems with no certified state representative.

- [x] TRUE
- [ ] FALSE

2.0 Operator compliance is monitored through a comprehensive inspection and enforcement program and includes which of the following activities? (Check all that apply)

- [x] Incident investigations and corrective actions
- [x] Inspections or operator procedures, processes and records
- [x] Comprised of field inspections of operator, maintenance and construction activities

3.0 Observation techniques and activities used to fulfill requirements for quality are also known as _____.

- [x] Quality Control
- [ ] Quality Assurance

4.0 In regards to the QAQC Audit Program, corrosion pipe to soil readings is considered an example of a _____.

- [ ] Performance Audit
- [ ] Record Audit
- [x] Field Verification Audit

5.0 In regards to the QAQC Audit Program, electrofusion is considered an example of a _____.

- [ ] Record Audit
- [x] Performance Audit
- [ ] Field Verification Audit

6.0 In regards to the QAQC Audit Program, maintaining leak management records is considered an example of a _____.

- [ ] Performance Audit
- [ ] Field Verification Audit
- [x] Record Audit

7.0 If an operator receives a Notice of Probable Violation (NOPV), they have the opportunity to disagree with the notice and express why.

- [x] TRUE
- [ ] FALSE

PASS [x] / **FAIL** [ ]

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 1.4 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (7 Correct Answers)

NAME Ethan Krahling **DATE** 9/15/15

1.4 DISTRIBUTION INTEGRITY MANAGEMENT PROGRAM TEST

1.0 The Pipeline and Hazardous Materials Safety Administration (PHMSA) established integrity management requirements for gas distribution pipeline systems. The rule was made effective on which date?

- [x] February 12, 2010
- [ ] December 4, 2009
- [ ] August 2, 2011

2.0 Excavation damage is the most significant threat to distribution integrity.

- [x] TRUE
- [ ] FALSE

3.0 Organize the steps for gas leak management in their appropriate order. (1-5)

- [5] Self assess to determine if additional actions are necessary to keep the system safe
- [2] Evaluate its severity
- [3] Act appropriately to mitigate the leak
- [1] Locate the leak
- [4] Keep records

4.0 A Small LPG Operator is defined as an operator of a liquefied petroleum gas (LPG) distribution pipeline that serves fewer than _____ customers from a single source.

- [ ] 75
- [ ] 50
- [x] 100
- [ ] 150

5.0 An operator must maintain records demonstrating compliance for at least _____ years.

- [ ] 7
- [ ] 12
- [x] 10
- [ ] 5

6.0 An operator must demonstrate an understanding of its gas distribution system developed from reasonably available information under the _____ element of the Integrity Management Plan.

- [ ] Evaluate and Rank Risk
- [x] Knowledge
- [ ] Report Results
- [ ] Identify Threats

7.0 An operator must re-evaluate threats and risks to the entire pipeline at least every 5 years under the _____ element of the Integrity Management Plan.

- [ ] Evaluate and Rank Risk
- [x] Periodic Evaluation & Improvement
- [ ] Report Results
- [ ] Identify Threats

PASS [x] **/ FAIL** [ ]

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 2.1 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (7 Correct Answers)

NAME [signature] **DATE** 9/15/16

2.1 PERFORM CONSTRUCTION PRACTICES TEST

1.0 With respect to route selection guidelines, avoid all of the following *except:*

- ☐ Populated areas
- ☐ Environmentally sensitive areas
- ☒ Ridges and valleys
- ☐ Rocky terrain
- ☐ Wetlands
- ☐ Unstable soil

2.0 A Class Location Unit is any onshore area that extends 220 yards on either side of the centerline of any continuous _____ mile of pipeline.

- ☐ 2
- ☒ 1
- ☐ 3
- ☐ 5

3.0 Any Class Location Unit where buildings with four or more stories above ground are prevalent:

- ☐ Class 2
- ☐ Class 1
- ☐ Class 3
- ☒ Class 4

4.0 A Pipeline Right of Way (ROW) is a defined strip of land on which an operator has the rights to construct, operate and/or maintain a pipeline.

- ☒ TRUE
- ☐ FALSE

5.0 After construction is complete, a Temporary ROW will remain available for use for operating and maintenance.

- ☐ TRUE
- ☒ FALSE

6.0 In regards to Cover/Clearance Specifications, you may exceed 48 inches in all of the following *except*:

- ☒ Navigable rivers
- ☐ Foreign lines
- ☐ Farmers' fields
- ☐ Tie-ins
- ☐ RR Crossings

7.0 The typical pipe stacking limits/levels for steel pipe 16" and smaller diameter is:

- ☐ 5
- ☐ 3
- ☐ 4
- ☒ 8

8.0 Aerial pipeline crossings that pose hazard to air or water navigation must be marked or lighted.

- ☒ TRUE
- ☐ FALSE

PASS ☒ **/ FAIL** ☐

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 2.2 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [signature] **DATE** 9/15/16

2.2 EXCAVATE NEAR A GAS PIPELINE TEST

1.0 Excavations should be inspected by a competent person (employee in charge).

- [x] TRUE
- [ ] FALSE

2.0 All known facilities must be located and marked within the proposed work location.

- [x] TRUE
- [ ] FALSE

3.0 When marking pipelines, the following requirements must be followed: (Check all that apply)

- [x] Mains and services that cross a proposed trench shall be marked at trench l line and at a second location away from trench
- [x] An adequate number of markings must be placed over gas facilities
- [x] All known facilities must be located and marked within the proposed work location

4.0 Once a Locate Ticket has been created, work must begin within _____ days.

- [ ] 28
- [ ] 7
- [x] 14
- [ ] 30

5.0 Hand dig when working within _____Inches of locates.

- [ ] 6
- [x] 18
- [ ] 24
- [ ] 12

6.0 Excavation activity may include any of the following: (Check all that apply)

- [x] Tunneling
- [x] Blasting
- [x] Horizontal directional drilling
- [x] Backfilling
- [x] Building demolition

7.0 You should always assume that locate marks are accurate.

- [ ] TRUE
- [x] FALSE

PASS [x] **/ FAIL** [ ]

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 2.5 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [signature] **DATE** 9/15/16

2.5 BACKFILL AN EXCAVATION TEST

1.0 Excavated material is always acceptable for reuse.

- ☐ TRUE
- ☒ FALSE

2.0 If moisture content to too _____, add dry sand and mix until it will not readily adhere to hand.

- ☒ High
- ☐ Low

3.0 Taking precautions during backfilling include all of the following practices: (Check all that apply)

- ☒ Special care must be taken when backfilling over mains and services.
- ☒ Any gas facilities undermined during construction must be backfilled from the side and then compacted.
- ☒ Backfill material should never be dumped directly on top pt gas piping.

4.0 When preparing the backfill bedding, wedging or support of the pipe with wood or any other type of material other than the pipe bedding material is acceptable.

- ☐ TRUE
- ☒ FALSE

5.0 When excavating and backfilling around gas services, _____ inches of sand padding should be placed over the pipe for protection.

- ☐ 2
- ☐ 4
- ☒ 6
- ☐ 8

6.0 When operating a vibratory plate compactor, start around the perimeter of the excavation and work toward the center.

- ☒ TRUE
- ☐ FALSE

7.0 During a soil compaction verification test, ensure the DCP is held _____ during operation.

- ☐ Horizontal
- ☒ Vertical

PASS ☑ / **FAIL** ☐

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 2.6 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME Juan Kalec **DATE** 9/15/16

2.6 INSTALL SHORING IN AN EXCAVATION TEST

1.0 Aluminum hydraulic cylinders are also known as:

- ☐ Vertical rails
- ☐ Horizontal rails
- ☒ Cross braces

2.0 Type C soil is the _____.

- ☐ Most stable
- ☐ Medium stable
- ☒ Least stable

3.0 Soil with freely seeping water is _____.

- ☐ Type A
- ☐ Type B
- ☒ Type C

4.0 Excavation Protective System types may include: (Check all that apply)

- ☒ Shielding (trench boxes)
- ☒ Benching
- ☒ Timber shoring
- ☒ Aluminum hydraulic shoring
- ☒ Sloping

5.0 Protection systems for use in excavations more that _____ feet in depth must be designed by a registered professional engineer.

- ☐ 10
- ☐ 15
- ☒ 20
- ☐ 25

6.0 Metal ladders should not be used when electric utilities are present.

- ☒ TRUE
- ☐ FALSE

7.0 When pumping the system pressure of aluminum hydraulic shoring, do not exceed a pressure of 750 psi.

- ☐ TRUE
- ☒ FALSE

PASS ☒ **/ FAIL** ☐

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 3.1 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME Evan Pahlke **DATE** 9/15/16

3.1 MEASURE PIPE TO SOIL POTENTIALTEST

1.0 According to the Pipeline Safety Regulations 49 CFR Part 192, Subpart I, both gas mains and services require annual pipe to soil inspections.

☐ TRUE ☒ FALSE

2.0 Corrosion occurs when current leaves from the anode (taking metal with it) and enters into the electrolyte.

☒ TRUE ☐ FALSE

3.0 Loss in cathodic protection can be from any of the following causes: (Check all that apply)

☐ Overpressure to the system
☐ Faulty Fuses
☒ Rectifier unit not functioning
☒ Excessive coating damage
☒ Improper rectifier current output
☒ Cable failure
☒ Lost of electrical isolation
☒ Depleted anodes
☒ Stray current failure

4.0 The preferred method of anode orientation is to install the anode horizontally.

☐ TRUE ☒ FALSE

5.0 High input resistance voltmeters (50,000 ohms resistance or higher) are required for measuring potentials between a pipeline and reference electrode.

☒ TRUE ☒ FALSE

6.0 Low resistance voltmeters helps overcome the effect of dry and/or frozen soils.

☐ TRUE ☒ FALSE

7.0 Parallax error is an error that can occur when reading a digital meter

☐ TRUE ☒ FALSE

8.0 The reference electrode can be affected by temperature.

☒ TRUE ☐ FALSE

9.0 Underground piping must meet one of the following cathodic protection levels: (Check all that apply)

☒ A negative polarized potential of at least 850 millivolts
☒ A minimum of 100 millivolts of cathodic polarization between the pipe surface and a stable reference electrode contacting the electrolyte
☐ A positive polarized potential of at least 850 millivolts
☒ A negative cathodic potential of at least 850 millivolts (mv) with the cathodic protection applied

10.0 The composition of a reference electrode is a copper rod, immersed in a saturated solution of copper sulfate, held in a sealed conducting cylinder.

☐ TRUE ☒ FALSE

PASS ☒ / FAIL ☐

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 3.2 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [signature] **DATE** 9/19/16

3.2 INSTALL AND TEST INSULATORS TEST

1.0 An insulating device may be installed in an area where a combustible atmosphere is anticipated without precautions taken to prevent arcing.

- [x] TRUE
- [ ] FALSE

2.0 According to code, a pipeline must be provided with protection against damage due to fault currents or lightning and protective measures taken at insulating devices if the pipeline is located: (Check all the apply)

- [x] In close proximity to electrical power footings, ground cables or counterpoise
- [x] In other areas where fault currents or unusual risk of lightning may be anticipated

3.0 Bypass lines at a meter run or regulator station must be insulated if the meter and regulator set is electrically insulated.

- [x] TRUE
- [ ] FALSE

4.0 Organize the steps for installing an insulated compression fitting in their proper sequence. (1-7)

- [6] Check insulator with RF tester
- [7] Soap test and apply pipe coating
- [2] Disassemble fitting and slide end nuts on pipe
- [3] Apply soapy water to gaskets
- [5] Tighten end nuts with pipe wrench
- [1] Clean pipe surfaces
- [4] Stab pipe ends into coupling body

5.0 Organize the steps for installing a meter riser insulated union in their proper sequence. (1-7)

- [7] Soap test and apply pipe coating
- [5] Tighten insulated union
- [1] Inspect fitting for any defects
- [6] Check insulator with RF tester
- [2] Apply thread compound to meter riser
- [4] Install insulated end of fitting onto pipe nipple downstream of union
- [3] Install non-insulated end of fitting into rise

6.0 If an insulator is shorted, it will read down toward zero.

- [x] TRUE
- [ ] FALSE

7.0 An ohmmeter measures resistance: (Chose one)

- [x] of underground circuits
- [ ] across insulators

PASS [x] **/ FAIL** [ ]

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 3.3 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME **DATE**

3.3 CONDUCT A SOIL RESISTIVITY SURVEY TEST

1.0 Soil resistivity may change over long distances, but over shorter distances resistivity will be consistent.

- ☐ TRUE
- ☑ FALSE

2.0 At which level (in ohm-cm) is soil considered essentially non-corrosive?

- ☐ <1,000
- ☐ 3,000 to 5,000
- ☐ 10,000
- ☑ >20,000

3.0 When using the soil box method, water should always be added to the soil sample.

- ☐ TRUE
- ☑ FALSE

4.0 The most reliable soil resistivity measurement method is:

- ☐ The single rod method
- ☐ The soil box method
- ☐ The spot probe method
- ☒ The Wenner four point method

5.0 When using the Wenner four point test, probes spaced 10' apart will measure average soil resistivity to a depth of:

- ☐ 1'
- ☐ 5'
- ☒ 10'
- ☐ 20

6.0 The Barnes method of a supplementary set of calculations used to more accurately gauge the resistance of each soil layer, rather than an average from grade to a certain depth.

- ☒ TRUE
- ☐ FALSE

7.0 A soil resistivity test using the Wenner method comes up with results that seem erratic, based on previous test results. Which of the following is most likely to be the issue?

- ☐ Broken equipment
- ☐ High pedestrian traffic area
- ☐ Gas leakage from pipeline
- ☒ Stray current interference

PASS ☑ / FAIL ☐

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 3.4 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME **DATE**

3.4 ATTACH A WIRE USING A THERMITE WELD TEST

1.0 In a thermite welding, an exothermic (heat) reaction produces a permanent high, conductivity connection between the pipe and wire.

- [x] TRUE
- [ ] FALSE

2.0 Thermite welding requires an external source of power or heat to weld.

- [ ] TRUE
- [x] FALSE

3.0 The following things must be thermite welded to the pipe: (Check all that apply)

- [x] Rectifier wires
- [x] Test point
- [x] Anode

4.0 In thermite welding, steel and cast iron charges are interchangeable.

- [ ] TRUE
- [x] FALSE

5.0 Do not thermite weld on severely corroded pipe

- [x] TRUE
- [ ] FALSE

6.0 Why is it important to keep your feet away from the pipeline during thermite welding?

- [x] Molten metal could escape from the crucible and fall on boots or shoes
- [ ] The ground becomes slippery
- [ ] A positive charge could escape and cause an ignition

7.0 To test a completed weld, apply a sharp blow from the side with a 3 pound hammer to ensure it cannot be removed with a strong force.

- [x] TRUE
- [ ] FALSE

PASS ☑ / **FAIL** ☐

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 3.5 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME Gary Daniels **DATE** 9/19/2016

3.5 TESTING FOR AND CLEARING OF SHORTS TEST

1.0 An insulating device _____ be installed in an area where a combustible atmosphere is anticipated unless precautions are taken to prevent arching.

- ☐ May
- ☒ May not

2.0 An electrical short can result in a "down zone" of a piping system with a pipe to soil reading below -0.85 volts.

- ☒ TRUE
- ☐ FALSE

3.0 To prevent false readings, ensure that probes are in contact with shiny metal.

- ☒ TRUE
- ☐ FALSE

4.0 Shorts can be due to faulty or improperly installed: (Check all that apply)

- ☒ Bolt sleeves
- ☒ Flange insulators
- ☒ Flange gaskets

5.0 Tracer wire on a plastic service pinched in a bracket and connected to a metal building or siding can be a possible cause of a meter short.

- ☒ TRUE
- ☐ FALSE

6.0 Casing isolators (spacers) inserted too _____ can cause a short.

- ☐ close together
- ☒ far apart

7.0 When casing shorts are found, _____ the level of cathodic protection.

- ☒ Increase
- ☐ decrease

PASS ☑ / FAIL ☐

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 3.6 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME Evan Dahlke **DATE** 9/19/16

3.6 INSTALL AN ANODE AND TEST STATION TEST

1.0 Each _____ connected to the pipeline must be coated with an electrical insulating material compatible with the pipe coating and the insulation on the wire.

- ☐ bare test lead wire
- ☐ bare metallic area
- ☒ both test lead wire and bare metallic area

2.0 Impressed current uses the naturally electrochemical potential difference between metals.

- ☐ TRUE
- ☒ FALSE

3.0 Anodes can be installed _____.

- ☐ vertically
- ☐ horizontally
- ☒ either vertically or horizontally

4.0 At the time of installation, anodes need to be _____.

- ☐ dry
- ☒ wet

5.0 Put in proper sequence the steps for anode lead attachment by thermite welding. (1-6)

- 2 Clean pipe with file
- 3 Strip insulation from wire
- 6 After inspection, coat pipe/weld area
- 4 Install copper sleeve on wire
- 1 Remove coating
- 5 Perform thermite weld procedure

6.0 Cathodic protection surveys are required annually.

- ☒ TRUE
- ☐ FALSE

7.0 Proper test station installation guidelines include which of the following? (Check all that apply)

- ☒ Damaged wires must be repaired by a method that will electrically isolate and properly seal
- ☒ In a roadway, the test station should be installed flush and secured to prevent settlement
- ☒ Test station box may be located in a street or offset to a location removed from the roadway
- ☒ Test wires must be installed with slack and anchored to relieve strain on the thermite weld

PASS ☒ **/ FAIL** ☐

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 3.7 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME Ivan Dalwell **DATE** 9/21/16

3.7 INSPECT AND MAINTAIN A RECTIFIER TEST

1.0 Each cathodic protection rectifier or other impressed current power source must be inspected _____ times each calendar year.

- ☐ 4
- ☒ 6
- ☐ 10
- ☐ 12

2.0 Maximum current through a shunt is _____ amperes.

- ☐ 1
- ☒ 2
- ☐ 3
- ☐ 4

3.0 Match the proper rectified connections

- ☒ Negative (-) — (1) Terminal must be connected to the anode bed
- ☐ Positive (+) — (2) Terminal of the power source must be connected to the structure.

4.0 Match the correct modes of operation for a rectifier

- ☒ Constant voltage — (1) Current output remains constant over a wide range of circuit resistances
- ☐ Constant current — (2) DC voltage at terminals remains constant for all current outputs
- ☒ Constant potential — (3) Current and voltage output vary to maintain a pre-selected structure potential

5.0 Selenium diodes (coated plates) cannot tolerate current overloads.

- ☐ TRUE
- ☒ FALSE

6.0 Select all of the following statements that apply to noise filters.

- ☒ Typically fused
- ☒ Reduces AC output voltage to less then 2 VAC
- ☒ Electrolytic capacitor installed across DC output leads
- ☐ A coil of low resistance and high inductance used in electrical circuits to pass direct current and attenuate alternating current

7.0 Before proceeding with the inspection, verify that the rectifier case is not energized.

- ☒ TRUE
- ☐ FALSE

PASS ☒ **/ FAIL** ☐

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OPERATOR QUALIFICATION - SECTION 3.8 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME Juan Rabiela **DATE** 9/21/16

3.8 INSPECT FOR ATMOSPHERIC CORROSION TEST

1.0 The most important factor in aboveground corrosion is:

- ☐ Pollutants
- ☒ Moisture
- ☐ Temperature

2.0 The following records and date related to corrosion must be retained: (Check all that apply)

- ☒ Repair
- ☒ Testing
- ☒ Inspection

3.0 Pitting and crevice corrosion are examples of general corrosion.

- ☐ TRUE
- ☒ FALSE

4.0 Light surface oxide is the slow rusting of pipe and is considered to be atmospheric corrosion.

- ☐ TRUE
- ☒ FALSE

5.0 If areas of atmospheric corrosion are identified by the inspector, remedial action to protect the pipe must be taken before the next scheduled inspection.

- ☒ TRUE
- ☐ FALSE

6.0 A wire brush cleaning and point will correct light surface oxide.

- ☒ TRUE
- ☐ FALSE

7.0 Pipeline supports must be included in inspections for atmospheric corrosion.

- ☒ TRUE
- ☐ FALSE

PASS ☑ **/ FAIL** ☐

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 3.9 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [illegible] **DATE** 9/21/16

3.9 CONDUCT INTERFERENCE TESTING TEST

1.0 Which of these is a common source of stray current and/or electrical interference?

- ☐ Power lines
- ☐ Train rails
- ☐ Other buried utilities
- ☒ All of the above

2.0 Natural corrosion generates more current than man made stray current sources.

- ☐ TRUE
- ☒ FALSE

3.0 One example of a potential dynamic stray current source is:

- ☐ Magnesium anode beds
- ☐ Ground current from high voltage utility lines
- ☐ Cathodic protection interference from other buried utilities
- ☒ Arc welding operations

4.0 When performing a stray current investigation, surveys should be performed at intervals of how many feet over the company piping?

- ☐ 10'
- ☒ 20'
- ☐ 30'
- ☐ 50'

5.0 If readings during a stray current investigation fluctuate or have significantly changed from previous survey results, this indicates possible stray current interference and should be investigated more closely.

- ☒ TRUE
- ☐ FALSE

6.0 How do interference bonds control the effects of the stray current?

- ☒ Drain the current through the cable back to the source
- ☐ Serve as an anode for the pipeline
- ☐ Causes the current to leave the structure through the earth path
- ☐ Serve as a physical current shield around the pipeline

7.0 Reverse current switches cause currents to flow:

- ☐ Through a diode
- ☐ In both directions, but not at the same time
- ☐ Around the pipeline
- ☒ In just one direction

PASS ☒ / FAIL ☐

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 3.10 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [illegible] **DATE** 9/23/16

3.10 INSPECT FOR INTERNAL CORROSION TEST

1.0 Internal corrosion in pipe is due to:

- ☐ Contaminants in the gas
- ☐ Operating conditions of the pipeline (gas velocity and temperature)
- ☒ All of the above

2.0 _____ is recognized by a roughening of the surface.

- ☒ General corrosion
- ☐ Localized corrosion
- ☐ All of the above

3.0 Characteristics of flow assisted corrosion may include thinning of the pipe wall and/or formation of vapor cavities

- ☒ TRUE
- ☐ FALSE

4.0 This type of corrosion occurs when dissimilar metals are in contact with the same electrolyte.

- ☐ Flow assisted
- ☐ Environmental
- ☐ Microbial
- ☒ Galvanic

5.0 This type of corrosion occurs from living, biological organisms.

- ☐ Flow assisted
- ☐ Environmental
- ☒ Microbial
- ☐ Galvanic

6.0 An example of this type of corrosion is hydrogen induced cracking.

- ☐ Flow assisted
- ☒ Environmental
- ☐ Microbial
- ☐ Galvanic

7.0 In line inspection is an internal corrosion measurement method that uses: (Chose one)

- ☐ Coupons
- ☐ Electrical resistance probes
- ☒ Smart pigs

PASS ☑ / FAIL ☐

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OPERATOR QUALIFICATION - SECTION 3.11 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [signature] **DATE** 9/23/16

3.11 MEASURE INTERNAL AND EXTERNAL CORROSION TEST

1.0 _____ is recognized by a roughening of the surface.

- [X] General corrosion
- [ ] Localized corrosion
- [ ] All of the above

2.0 This type of corrosion occurs when dissimilar metals are in contact with the same electrolyte.

- [ ] Flow assisted
- [ ] Environmental
- [ ] Microbial
- [X] Galvanic

3.0 This type of corrosion occurs downstream of a valve, in valve pumps, orifices, elbows and tees.

- [X] Flow assisted
- [ ] Environmental
- [ ] Microbial
- [ ] Galvanic

4.0 This type of corrosion occurs from living, biological organisms.

- [ ] Flow assisted
- [ ] Environmental
- [X] Microbial
- [ ] Galvanic

5.0 An example of this type of corrosion is hydrogen induced cracking.

- [ ] Flow assisted
- [X] Environmental
- [ ] Microbial
- [ ] Galvanic

6.0 In line inspection is an internal corrosion measurement method that uses: (Chose one)

- [ ] Coupons
- [ ] Electrical resistance probes
- [X] Smart pigs
- [ ] Visual
- [ ] Ultrasonic instruments

7.0 A tool that uses electro mechanical means to measure the bore of a pipe while sensing changes to girth welds and wall thickness is a/an: (Chose one)

- [ ] Global positioning system
- [ ] Ultrasonic instruments
- [ ] Magnetic flux leakage
- [ ] Smart pigs
- [X] Geometry

PASS ☑ **/ FAIL** ☐

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OPERATOR QUALIFICATION - SECTION 4.1 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME Brian Dalrille **DATE** 9/23/16

4.1 INSPECT CONDITION OF PIPE TEST

1.0 Arc burns are visible depressions that distort the curvature of the pipe.

☐ TRUE ☒ FALSE

2.0 If disbonded coating is found, new pipe coating must be applied immediately for corrosion protection.

☐ TRUE ☒ FALSE

3.0 Uncoated steel pipelines are referred to as bare steel.

☒ TRUE ☐ FALSE

4.0 On cast iron and ductile iron pipelines, where general graphitization occurs, that particular section may be repaired.

☐ TRUE ☒ FALSE

5.0 Whenever any portion of a buried steel pipeline is exposed, the operator must examine it for evidence of coating damage or corrosion.

☒ TRUE ☐ FALSE

6.0 Holiday detectors are used to detect defects in pipe coatings applied to steel surfaces.

☒ TRUE ☐ FALSE

7.0 Defects to PE pipe that are greater than 5% must be cut out.

☐ TRUE ☒ FALSE

8.0 Replacement must be a consideration for graphitized cast iron found in unstable soil.

☒ TRUE ☐ FALSE

9.0 External inspections of exposed pipe should include which of the following? (Check all that apply)

☐ Graphitization of PE pipe

☒ Corrosion

☒ Test stations

☒ Coating condition

☒ Anode

10.0 The extent of damage and/or loss of pipe strength is more difficult to assess on new pipe inspection.

☐ TRUE ☒ FALSE

PASS ☒ / **FAIL** ☐

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OPERATOR QUALIFICATION - SECTION 4.2 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [signature] **DATE** 6/23/16

4.2 INSTALL STEEL PIPE TEST

1.0 A wrinkle bend may not be made on steel pipe operated at a pressure producing a hoop stress of 30% or more of SMYS.

- [x] TRUE
- [ ] FALSE

2.0 On _____ pipe and larger, each bend may not have a deflection of more than 1 1/2 degrees.

- [ ] 12"
- [ ] 14"
- [x] 16"
- [ ] 18"

3.0 Each transmission line must be installed with 18" of clearance from other structures.

- [ ] TRUE
- [x] FALSE

4.0 When a nightcap for steel pipe is used, it must be marked for identification purposes.

- [x] TRUE
- [ ] FALSE

5.0 Deformed pipe may be reformed by gently hammering.

- [ ] TRUE
- [x] FALSE

6.0 Where specified, rock shield must be securely fastened with metal straps to the pipe before lowering it.

- [x] TRUE
- [ ] FALSE

7.0 Where required, trench padding consisting of _____ must be placed in the trench to complete encase the pipe.

- [ ] Topsoil
- [x] Sand backfill

PASS [x] **/ FAIL** [ ]

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 4.3 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [illegible] **DATE** 9/23/16

4.3 INSTALL POLYETHYLENE (PE) PIPE TEST

1.0 Which of the following are acceptable methods and equipment uses for lifting, loading and unloading PE Pipe? (Check all that apply)

- [x] Padded forklift
- [ ] Spreader bars
- [ ] Wire rope
- [ ] Chains
- [x] Nylon slings

2.0 In order to prevent water and debris from entering inside the pipe, the pipe ends must contain dust caps.

- [x] TRUE
- [ ] FALSE

3.0 PE pipe must have a minimum clearance of 36" from steam lines or other heat sources.

- [x] TRUE
- [ ] FALSE

4.0 The average outdoor unprotected storage life for PE pipe is 2 years.

- [x] TRUE
- [ ] FALSE

5.0 After all PE pipe has been inspected for damage, defects that are greater than 15% of the pipe wall thickness must be cut out.

- [ ] TRUE
- [x] FALSE

6.0 Distribution mains must have a minimum cover of _____.

- [ ] 12"
- [x] 24"
- [ ] 18"
- [ ] 36"

7.0 The use of warning tape is _____.

- [x] optional, but recommended
- [ ] required

8.0 PE pipe with not fittings, may be permanently bent to a radius of _____ times the pipe diameter.

- [ ] 5
- [x] 20
- [ ] 10
- [ ] 100

9.0 Tracer wire is required for direct buried PE pipe and must be wrapped around the pipe.

- [ ] TRUE
- [x] FALSE

10.0 Which of the following are insertion requirements for PE pipe? (Check all that apply)

- [x] Protection sleeves installed shear point
- [x] An allowance for thermal expansion and contraction must be made at lateral end connections
- [x] Casing pipe ends should be reamed or shielded

PASS [x] **/ FAIL** [ ]

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 4.4 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [signature] **DATE** 9/23/16

4.4 INSTALL TRACER WIRE TEST

1.0 Which of the following statements are code requirements for proper use of tracer wire? (Check all that apply)

- ☐ Must be copper clad steel wire
- ☒ Resistant to corrosion damage
- ☒ Contact with pipe is minimal but not prohibited
- ☒ Should be wrapped around the pipe

2.0 Tracer wire does not require that coating be stripped, prior to installation in connector.

- ☐ TRUE
- ☒ FALSE

3.0 A locate must be performed before backfilling to ensure continuity of the tracer wire.

- ☒ TRUE
- ☐ FALSE

4.0 Above ground access points for tracer wire to make a direct connection with locating instruments include which of the following: (Check all that apply)

- ☒ Risers on services
- ☐ Regulators
- ☒ Meters
- ☒ Valve boxes
- ☒ Curb boxes

5.0 Tracer wire connectors may be reused.

- ☐ TRUE
- ☒ FALSE

6.0 Any breaks in electrical continuity identified must be located and repaired.

- ☒ TRUE
- ☐ FALSE

7.0 Tracer wire should be installed with:

- ☐ Services
- ☐ Mains
- ☒ Both services and mains
- ☐ None of the above

8.0 Before closing the housing on the tracer wire connection, the sealant cover is removed and discarded.

- ☒ TRUE
- ☐ FALSE

PASS ☒ / FAIL ☐

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OPERATOR QUALIFICATION - SECTION 5.1 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (4 Correct Answers)

NAME [redacted] **DATE** 9/23/16

5.1 JOIN POLYETHYLENE PIPE: STAB FITTINGS TEST

1.0 Regarding Stab Type Mechanical fittings, all of the following statements are true *except:*

- [x] Usually used for 6" IPS and smaller joining
- [ ] Once pushed (stabbed) onto the pipe end it seals and provides restraint
- [ ] They do not require tightening of bolts or nuts
- [ ] The gripping device is activated with slight movement

2.0 When inspecting polyethylene pipe, scratches in excess of _____% pipe wall thickness must be cut out.

- [ ] 5
- [x] 10
- [ ] 12
- [ ] 15

3.0 For verification of fitting size, compare PE size to fitting label for correct match.

- [x] TRUE
- [ ] FALSE

4.0 Stab depth is the approximate distance from the edge of the fusion bead to the end of the fitting body.

- [ ] TRUE
- [ ] FALSE

5.0 During inspection and testing of the fittings installation, _____ the mechanical joint in accordance with company procedures.

- [ ] Pressure Test
- [ ] Soap Test
- [x] Both

PASS ☒ / **FAIL** ☐

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 5.2 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [illegible] **DATE** 9/23/16

5.2 JOIN PIPE: COMPRESSION COUPLINGS TEST

1.0 The following statements apply to Perfection bolted compression couplings (Nonbottom-out couplings): (Check all that apply)

- [x] Tightening of the bolts draws the two follower flanges together, compacting the gaskets into the cavity between the sleeve, flanges and pipe surface, creating a bubble-tight flexible seal.
- [x] Compressive force applied to a gasket on the outside of the pipe
- [ ] Compression not bottoms out when sufficient torque has been applied during installation.

2.0 Compression couplings are typically used to: (Check all that apply)

- [x] Connect Steel pipe when welding is not possible
- [x] Provide a mechanical connection to cast iron pipe
- [x] Join copper tubing
- [x] Join pipe when gas is present
- [x] Tie-in or replace short segments of pipe
- [x] Join polyethylene (PE) pipe when heat fusion and/or electrofusion methods are not feasible

3.0 An optional connection to attach an anode to the coupling on the body or middle ring is:

- [x] Anode connector
- [ ] Grip ring
- [ ] Follower
- [ ] Armor

4.0 The means of compressing a bolted coupling, providing seal and restraint.

- [ ] Pipe end separator
- [ ] Compression nut
- [ ] Insert stiffener
- [x] Bolt and nut

5.0 A highly dielectric cylindrical sleeve preventing electrical shorting between the pipe and middle ring.

- [ ] Retainer cup
- [ ] Insert stiffener
- [ ] Pipe end separator
- [x] Insulator

6.0 Retains the gasket in a threaded compression fitting.

- [ ] Anode connector
- [ ] Insert stiffener
- [x] Retainer cup
- [ ] Grip ring

7.0 A tubular reinforcement sleeve used on all polyethylene pipe/tubing ends to prevent pipe collapse.

- [ ] Retainer cup
- [ ] Middle ring/body
- [ ] Follower insulator
- [x] Insert stiffener

8.0 Pressure containing component that ridges the gap between the pipe ends.

- [x] Middle ring/body
- [ ] Armor
- [ ] Pipe end separator
- [ ] Gasket

9.0 Perfection coupling require the use of cathodic protection.

- [ ] TRUE
- [x] FALSE

10.0 Style 401 Compression Couplings apply to: (Check all that apply)

- [x] Polyethylene to polyethylene connections
- [ ] Polyethylene to steel connections
- [x] Polyethylene to copper connections

PASS [x] / **FAIL** [ ]

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 5.3 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [signature] **DATE** 9/26/16

5.3 JOIN POLYETHYLENE PIPE: BUTT FUSION MANUAL TEST

1.0 What is a concave melt?

- ☐ Occurs during socket fusion
- ☐ An acceptable fusion joint
- ☐ Caused by pipe slippage
- ☒ Caused by too much pressure during heating

2.0 What can cause V-shaped roll back beads during butt fusion?

- ☐ Improper control time
- ☐ Too much pressure against the heater
- ☐ Improper heater temperature
- ☒ Not applying sufficient force

3.0 Before subjecting the pipe to rough handling, what is the minimum time to wait, once a butt fusion joint is removed from a fusion machine?

- ☐ 3 minutes
- ☐ 5 minutes
- ☒ 10 minutes
- ☐ 15 minutes

4.0 How much force is required for manual butt fusion during the heating cycle?

- ☒ Minimal fingertip pressure
- ☐ 500 psi
- ☐ Depends on the pipe diameter size
- ☐ Extreme pressure to form melt pattern

5.0 The purpose of the locking cam on the fusion unit is to:

- ☐ Automatically correct the proper fusion pressure during fusion
- ☒ Maintain the operator's fusion pressure
- ☐ Align the heater plate, once placed on the guide rods
- ☐ Prevent V-shaped roll back bead during fusion

6.0 If any adjustments are made during a check for proper alignment, refacing of the pipe ends is required.

- ☒ TRUE
- ☐ FALSE

7.0 After completion of every fusion joint, how should the heater plate be cleaned?

- ☐ With a clean rag soaked in isopropyl alcohol
- ☐ With a wire brush
- ☐ With water and a paper towel
- ☒ With a clean, non-synthetic cloth

8.0 When butt fusing 2" diameter pipe, a 3/16" melt bead should be obtained before joining the pipe?

- ☐ TRUE
- ☒ FALSE

9.0 Which of the following is considered a quality butt fusion joint?

- ☐ V-shaped roll back bead
- ☐ Double roll back bead with only slight misalignment
- ☒ Double roll back bead
- ☐ All of the above

10.0 In order to ensure proper fusion pressure, the heated pipe ends should be slammed together.

- ☐ TRUE
- ☒ FALSE

PASS ☒ / **FAIL** ☐

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 5.6 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [signature] **DATE** 6/26/16

5.6 JOIN POLYETHYLENE PIPE: ELECTROFUSION TEST

1.0 Once the electrofusion cycle is complete, how long must the control box leads remain connected to the fitting, prior to removal?

- ☐ 10 seconds
- ☐ 20 seconds
- ☒ 30 seconds
- ☐ There is no time requirement

2.0 Which of the following is an incorrect statement for electrofusion?

- ☐ Final cleaning must be performed with an alcohol wipe
- ☒ Prior to using the bar code procedure, remove the plastic well caps from fittings
- ☐ Mark proper stab depth with half length of coupling
- ☐ Remove oxidized layer on PE pipe with a scraper

3.0 A quality electrofusion tapping tee can have visible outflow.

- ☐ TRUE
- ☒ FALSE

4.0 One of the quality requirements for a completed electrofusion tee or coupling is that you verify presence of material flow in *both* fitting wells.

- ☒ TRUE
- ☐ FALSE

5.0 Checking the proper operation of the pressure sensor leads is a test requirement that is performed for the electrofusion bar code procedure

- ☐ TRUE
- ☒ FALSE

6.0 Missed areas of oxidation removal on PE pipe can result from: (Check all that apply)

- ☒ Worn blades
- ☐ Manufacturing process
- ☒ Improper technique
- ☒ Damage to pipe scraper

7.0 It is not important to mark the stab depth on pipe with a felt maker.

- ☒ TRUE
- ☒ FALSE

8.0 When installing an electrofusion coupling/tee the fitting shall be cleaned with an alcohol wipe.

- ☒ TRUE
- ☐ FALSE

9.0 During the bar code procedure, you must compare the fusion time on the fitting bar code with the control box display.

- ☒ TRUE
- ☐ FALSE

10.0 A short stab condition is a problem/issue that can result by not making both ends of the pipe, using the electrofusion coupling as a measuring device.

- ☒ TRUE
- ☐ FALSE

PASS ☒ / **FAIL** ☐

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 5.7 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (4 Correct Answers)

NAME Evan Kalwitz **DATE** 9/27/16

5.7 JOIN POLYETHYLENE PIPE: SOCKET HEAT FUSION TEST

1.0 In a potentially explosive atmosphere, a fusion heater needs to be brought up to temperature in a safe environment, then unplugged before entering.

- [x] TRUE
- [ ] FALSE

2.0 For incomplete melts, cut off the melted pipe end and repeat procedure with the same fitting.

- [ ] TRUE
- [x] FALSE

3.0 For a proper cooling, allow an additional _____ minutes before removing the cold ring clamp.

- [ ] 2
- [x] 3
- [ ] 5
- [ ] 10

4.0 After inspection of the joint, wait another _____ minutes before subjecting the pipe to rough handling, (example: stress of pressure testing)

- [ ] 3
- [ ] 5
- [x] 10
- [ ] 15

5.0 In a visual inspection, there must not be any gaps or voids between the fitting and pipe.

- [x] TRUE
- [ ] FALSE

PASS [x] **/ FAIL** [ ]

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 5.8 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [signature] **DATE** 9/27/16

5.8 INSPECT A POLYETHYLENE PIPE FUSION JOINT TEST

1.0 Unacceptable fusion joints must _____.

- ☐ be cut out and replaced
- ☐ be sent to the Engineering Materials Evaluation Center
- ☐ have a Materials Fault Report completed as a follow-up
- ☒ All of the above

2.0 Which of the following is a *correct* visual inspection condition for a quality butt fusion joint?

- ☒ Uniform double roll back beads
- ☐ Concave melt beads
- ☐ Uniform gaps on melt bead area
- ☐ V-shaped roll back beads

3.0 Which of the following is not a cause for a cold fusion joint?

- ☐ Incomplete facing
- ☐ Slamming a fusion joint together
- ☒ Contact pressure during heating
- ☐ Improper alignment

4.0 V-shaped roll back beads are caused by _____ during butt fusion.

- ☐ too much pressure against the heater
- ☐ improper heater temperature
- ☐ the formation of a concave melt
- ☒ Insufficient fusion pressure and/or pipe slippage

5.0 Which of the following can result in an unacceptable socket fusion joint?

- ☐ Short stab depth
- ☐ No depth gauge used
- ☐ No cold ring used
- ☒ All of the above

6.0 How is a concave melt formed?

- ☒ Caused by excessive pressure during heating
- ☐ By contact pressure only during heating
- ☐ When the pipe slips through jaws
- ☐ Caused by moisture contamination

7.0 The "race track effect" is a visual observation that _____.

- ☐ occurs during heating because of too much pressure
- ☐ can result in a cold fusion joint
- ☐ is regarded as an unacceptable visual appearance
- ☒ All of the above

8.0 The most common cause of joint failure for an electrofusion fitting is _____.

- ☐ visible outflow
- ☒ improper pipe preparation
- ☐ concave melt
- ☐ molten material movement occurring inside fitting wells

9.0 Saddle heat fusion joins are acceptable if three beads are visible around the base of fitting (front and back)

- ☒ TRUE
- ☐ FALSE

10.0 Which of the following is a correct visual inspection condition for electrofusion?

- ☐ Material flow visually seen in only one well of fitting
- ☐ Visible outflow present outside of a 2" coupling
- ☒ No presence of visible outflow around electrofusion tee
- ☐ Tee was placed on an unscraped area of pipe

PASS ☒ **/ FAIL** ☐

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 5.9 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (10 Correct Answers)

NAME Evan Parker **DATE** 9/27/16

5.9 WELD STEEL PIPE TEST

1.0 Cracks occurring in a weld or adjacent area are defects that occur in the weld metal or heat affected zone.

☐ TRUE ☐ FALSE

2.0 How many welders are required on NPS 16" and larger pipe?

☐ One welder to complete the entire weld
☒ Two welders to run root bead and hot pass
☐ One welder to run root bead and hot pass only
☐ Two welders to run only the root bead

3.0 With respect to excavation safety, which of the following is an *incorrect* statements?

☒ Ladders are to be level with the top to the excavation
☐ Ladders are to extend 3' above the top of excavation
☐ There must be a 25' of lateral travel for ladders in a 4' trench
☐ Welders must not enter an unsafe excavation

4.0 Which of the following is a requirement for electric arc welding machines?

☒ Electrode must be removed from the holder when machine is unattended
☐ Amperage and voltage ranges are the same for all procedures
☐ A flint gun must be used to ignite torches
☐ All of the above

5.0 Which of the following statements *is not* a gas welding requirement?

☒ Secure cylinders in an upright position
☐ Cylinders with regulators attached, must be protected from damage during transport
☐ A flint gun must be used to ignite torches
☐ Each torch must be fitted with a reverse flow check valve and flashback arrestor

6.0 Which of the following is not a requirement for welding filler metals (electrodes)?

☐ Electrodes must be kept in their containers and only opened as required
☐ The stamp or marking must be legible or it cannot be used
☐ Damaged electrodes must be discarded
☒ Electrodes that have absorbed sufficient moisture must be dried before using

7.0 With regard to eye protection, correct lens selection is based on the welding process and welding current.

☒ TRUE ☐ FALSE

8.0 Tack welds cannon be used as part of the weld root bead.

☐ TRUE ☒ FALSE

9.0 The number of passes, class and size of welding electrodes must confirm to the Welding Procedure Specification by the company.

☒ TRUE ☐ FALSE

10.0 In order to prevent electric shock, power source with an input power cable must be kept short and must be kept short and must be connected to an approved ground.

☒ TRUE ☐ FALSE

11.0 It is acceptable to tack weld ground clamps to pipe.

☐ TRUE ☒ FALSE

12.0 Ultraviolet light from a weld arc *will not* cause skin burns or eye damage.

☐ TRUE ☒ FALSE

PASS ☒ / **FAIL** ☐

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 6.1 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [illegible] **DATE** 9/28/16

6.1 INSPECT, OPERATE AND MAINTAIN A VALVE TEST

1.0 A valve's operability check consists of fully closing and immediately returning the valve to the full open position.

- ☐ TRUE
- ☒ FALSE

2.0 Valves can: (Check all that apply)

- ☒ Control gas faster and more efficiently than stopping or squeezing off equipment
- ☒ Enable rapid shutdown during and emergency
- ☒ Allow construction and maintenance activities to occur without interrupting gas supply to a large number of customers

3.0 This type of valve contains conical-tapered plugs which are rotated to control flow.

- ☒ Plug valve
- ☐ Butterfly valve
- ☐ Gate valve
- ☐ Ball Valve

4.0 This type of valve has a closing mechanism that is a metal disk.

- ☐ Gate valve
- ☐ Ball Valve
- ☐ Plug valve
- ☒ Butterfly valve

5.0 This type of valve employs a sliding gate to close off or open flow.

- ☐ Ball Valve
- ☒ Gate valve
- ☐ Butterfly valve
- ☐ Plug valve

6.0 This type of valve contains a spherical disc that controls flow.

- ☐ Butterfly valve
- ☐ Plug valve
- ☒ Ball Valve
- ☐ Gate valve

7.0 Never operate a valve that is labeled with a lockout/tagout device.

- ☒ TRUE
- ☐ FALSE

8.0 A slam-shut valve is a specific device that provides over pressure protection.

- ☒ TRUE
- ☐ FALSE

9.0 Valves are lubricated to make the valve easier to turn, and to prevent the valve from leaking between the plug and body.

- ☒ TRUE
- ☐ FALSE

10.0 Which of the following is *not* a valve inspection task?

- ☐ Location verification
- ☐ Leak test
- ☐ Accessibility check
- ☐ Operability check
- ☐ Tag verification
- ☒ None of the above

PASS ☒ / **FAIL** ☐

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 6.2 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [signature] **DATE** 9/25/16

6.2 CONDUCT A PRESSURE TEST

1.0 Pressure tests must be documented by a _____.

- ☐ Supervisory engineer
- ☐ Hydrostatic spring gauge
- ☒ Pressure recording chart
- ☐ None of the above

2.0 Which of the following medium can be used to conduct a pressure test?

- ☐ Air
- ☐ Inert gas
- ☐ Liquid
- ☒ All of the above

3.0 When pressure testing steel pipe operated at 100 psi, which of the following factors determines the test pressure.

- ☐ Test factor
- ☐ Pipe MAOP
- ☐ Class location
- ☒ All of the above

4.0 How long must a pressure test record be retained?

- ☐ 10 years
- ☐ Depends on the test pressure and medium used for the test
- ☐ 5 years
- ☒ The useful life of the pipeline

5.0 Regarding pressure testing safety, which of the following is an *incorrect* statement?

- ☒ Testing against closed valves is a recommended practice
- ☐ The pipeline being test must be physically isolated
- ☐ Person not working on the test operation should be kept outside the area
- ☐ None of the above

6.0 Why should purging be considered in pressure testing?

- ☒ To prevent an explosive gas and air mixture
- ☐ To prevent a combustible nitrogen mixture with gas
- ☐ To dispose of test medium contents in minimizing environmental damage
- ☐ All of the above

7.0 Which of the following *is not* a Federal code specification for pressure testing of mains and services.

- ☐ Pipe type
- ☐ Pipe strength
- ☐ Operating pressure
- ☒ Temperature

8.0 Which of the following must be pressured tested prior to being placed in operation?

- ☐ Reactivated mains
- ☐ Renewed service pipes
- ☐ Reconnected service pipes
- ☒ All of the above

9.0 Temperature changes will affect pressure during a test.

- ☒ TRUE
- ☐ FALSE

10.0 Hydrostatic testing involves filling a pipeline with a liquid that is pressurized to ensure integrity and strength.

- ☒ TRUE
- ☐ FALSE

PASS ☒ / **FAIL** ☐

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 6.3 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [redacted] **DATE** 9/28/16

6.3 ABANDON A PIPELINE FACILITY TEST

1.0 An abandoned pipeline is a pipeline that is physically separated from its source of gas and is no longer maintained under Part 192 regulations.

☒ TRUE ☐ FALSE

2.0 For all abandonments, ensure there are no open flames or other sources of ignition near the job site.

☒ TRUE ☐ FALSE

3.0 Operators must maintain reporting records of abandoned:

☐ Services ☐ Mains ☒ Both service and mains

4.0 When a main is abandoned, it must be all of the following *except*:

☐ Correctly sealed with caps or pluge at the ends ☐ Isolated into sections that a practical for the individual area

☒ Connect to a live system ☐ Purged of gas

5.0 Company record and field checks should be made to ensure pipelines to be abandoned are discontinued from all sources/supplies of gas.

☒ TRUE ☐ FALSE

6.0 Organize the steps to abandon PE Service from Steel Main in their proper order. (1-8)

2 Apply corrosion protected coating

5 Install steel cap on tee chimney (tighten with wrench)

1 Remove cap from steel tap-n-valve tee

7 Seal abandoned service pipe with compression cap or butt fusion cap

3 Cut PE service piping/tubing (approximately 12" from shield nut on tap tee assembly)

2 Screw internal cutter clockwise to stop gas flow

4 Install PE compression cap on end of pipe

6 Soap test cap and all connections for leaks

7.0 When abandoning service lines from active mains, seal (cap) abandon portion _____ main and soap test for leaks.

☐ Furthest from ☒ Nearest to

8.0 A low pressure main cut-out includes which of the following? (Check all that apply)

☒ Purge the cut-out section ☒ Install bage end/or stoppers

☒ Check all drips on pipe to be abandoned ☒ Perform a supply pressure test

9.0 An inactive service is not connected to downstream piping, but can be connected to a live upstream system.

☒ TRUE ☐ FALSE

10.0 Following a main abandonment, any service pipes should remain connected (no need to disconnect).

☐ TRUE ☒ FALSE

PASS ☒ **/ FAIL** ☐

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 6.4 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [signature] **DATE** 9/29/16

6.4 OPERATE AND INSPECT A PRESSURE RECORDING GAUGE TEST

1.0 **Federal code requires testing recording gauges and recalibrating annually.**

☒ TRUE ☐ FALSE

2.0 **The purpose of a recording gauge is to provide a permanent, continuous record of pipeline temperature.**

☐ TRUE

☒ FALSE

3.0 **It is not important to check that the correct chart is installed for the pressure range of the recorder because the charts are all the same**

☐ TRUE ☒ FALSE

4.0 **Pressure recorder inspection should verify that the gauge is operating properly and within calibration.**

☒ TRUE

☐ FALSE

5.0 **A pressure recorder chart can reveal an abnormal operating condition.**

☒ TRUE

☐ FALSE

6.0 **If a pressure recorder pen will not zero, possible causes are that zero adjustment is off or arm may be bent.**

☒ TRUE

☐ FALSE

7.0 **When performing a pen zero adjustment, the pressure recorder should be pressurized.**

☐ TRUE

☒ FALSE

8.0 **Battery powered chart drives require a power switch to begin operation.**

☐ TRUE

☒ FALSE

9.0 **When calibrating a recording gauge, adjust the zero point and the arc line.**

☒ TRUE

☐ FALSE

10.0 **Pressure recorders can provide an improper reader if they are not level and plumb.**

☒ TRUE

☐ FALSE

PASS ☑ **/ FAIL** ☐

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 6.5 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [illegible] **DATE** 9/29/16

6.5 PERFORM NON DESTRUCTIVE TESTING (NDT) OF WELDS TEST

1.0 Non-destructive testing be performed on pipeline welds, operating at a hoop stress of 20% or more of SYMS unless the pipe has a nominal diameter of less than _____ inches.

- ☐ 4
- ☒ 6
- ☐ 8
- ☐ 10

2.0 Non-destructive testing (NDT) is defined as a group of analysis techniques used to evaluate a welded component or pipe material without causing any damage.

- ☒ TRUE
- ☐ FALSE

3.0 Performing radiographic X-ray does not require personnel to be qualified.

- ☐ TRUE
- ☒ FALSE

4.0 _____ testing is used to detect surface/subsurface flaws only in materials that can be magnetized.

- ☐ Liquid penetrant
- ☒ Magnetic particle

5.0 Localized imperfection outside the weld zone is a result of: (Check all that apply)

- ☒ Arc burn
- ☐ Porosity
- ☐ Undercutting

6.0 A weld that does not form a cohesive bond with base metal is a result of: (Check all that apply)

- ☒ Incomplete fusion
- ☐ Slag inclusions
- ☐ Undercutting

7.0 Part 192.241(c) states that all unacceptable welds must be removed and repaired.

- ☒ TRUE
- ☐ FALSE

8.0 A slag inclusion is an open hole that has completely melted through the base metal

- ☐ TRUE
- ☒ FALSE

9.0 A weld containing porosity means that voids are present due to trapped gas.

- ☒ TRUE
- ☐ FALSE

10.0 A weld with inadequate penetration is caused by excessive heat input.

- ☐ TRUE
- ☒ FALSE

PASS ☒ **/ FAIL** ☐

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 6.7 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [illegible] **DATE** 9/29/16

6.7 APPLY EXTERNAL PIPE COATING TEST

1.0 Pipeline coatings are designed for above ground applications only.

☐ TRUE ☒ FALSE

2.0 Coatings isolate the pipeline from corrosive environments and improve the effectiveness of cathodic protection.

☒ TRUE ☐ FALSE

3.0 Handling coated pipe & materials includes which of the following requirements? (Check all that apply)

☒ All coatings must be applied in accordance with manufacturers specifications

☐ Chains and steel bands should be used

☒ Must be stored in a clean, dry condition away from extreme heat

☒ A wide belt sling must be used to hoist and move pipe

4.0 Regarding specialty field applied coatings, they must only be applied by qualified applicators with an approved procedure.

☒ TRUE ☐ FALSE

5.0 Tapecoat 20 is acceptable for use when: (Check all that apply)

☐ Pipeline is in service

☒ Where 360 degrees of pipe is accessible

☒ Larger coating jobs on straight pipe runs

☐ Condensation is a possibility

6.0 TC Omniprime primer should be applied immediately or 4 hours after surface preparation (Tapecoat 20).

☒ TRUE ☐ FALSE

7.0 Tapecoat H35 Gray can be used on pipe that is horizontally directionally drilled or slip bored.

☐ TRUE ☒ FALSE

8.0 Holiday detectors can be used on coating surface without removing moisture and/or debris.

☐ TRUE ☒ FALSE

9.0 A combustion free environment must be maintained during the operation of a holiday detector.

☒ TRUE ☐ FALSE

10.0 Exceeding a holiday detector operating voltage for a specified coating type will damage the coating.

☒ TRUE ☐ FALSE

PASS ☒ **/ FAIL** ☐

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 6.8 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME SWD **DATE** 9/29/16

6.8 PERFORM INDIRECT INSPECTION TECHNIQUES TEST

1.0 An advantage of the close interval survey is that no trailing wire is required.

☐ TRUE ☒ FALSE

2.0 Which indirect inspection survey includes an A-Frame device to pinpoint coating anomalies?

☒ Alternating current voltage gradient ☐ Close interval survey

☐ Depolarized potential survey ☐ Direct current voltage gradient

3.0 The pipeline current mapper magfoot (magnetometer) attachment measures current and stores the date for future downloading?

☒ TRUE ☐ FALSE

4.0 The pipeline current mapper operation requires pipe contact by the receiver.

☐ TRUE ☒ FALSE

5.0 Voltage gradient is the change in electrical potential that increase with coating fault size.

☒ TRUE ☐ FALSE

6.0 Which of the following is not associated with direct current voltage gradient?

☐ Does not require trailing copper wires ☐ Can be used in combination with other materials

☒ Does not require a current interrupter ☐ High accuracy in locating defects

7.0 One of the benefits of pipeline current mapper is that it mirrors DC current generated by the cathodic protection

☒ TRUE ☐ FALSE

8.0 During a DCVG parallel survey, as the operator approaches a fault (defect) the voltmeter's signal strength will decrease.

☐ TRUE ☒ FALSE

9.0 Alternating current voltage gradient (ACVG) surveys are similar to direct current voltage gradient (DCVG) surveys, with the exception that ACVG uses alternating current from a signal generator.

☒ TRUE ☐ FALSE

10.0 Which of the following is required when using a pipeline current mapper A-Frame?

☐ Green spike faces toward the transmitter

☐ Unit must be plugged into the receiver to obtain current direction and reading

☐ Red spike faces toward the transmitter

☒ All of the above

PASS ☑ **/ FAIL** ☐

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 6.9 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME Susan Schell **DATE** 9/29/16

6.9 INSTALL MECHANICAL CLAMPS AND REPAIR SLEEVES TEST

1.0 When leakage or damage is discovered in steel pipe, assessments must be made to determine whether the pipe section should be repaired or replaced.

☒ TRUE ☐ FALSE

2.0 A welded full encirclement repair sleeve that will contain pipeline pressure around pipe damage or a leak is known as a _____.

☐ Bolt on split sleeve
☒ Steel pressure containment sleeve
☐ Mechanical repair clamp
☐ Temporary clamp

3.0 A steel reinforcement sleeve must extend at least _____ beyond the ends of the defect.

☐ 1 inch ☐ 6 inches
☒ 2 inches ☐ 1 foot

4.0 Prior to installation of a bell joint clamp, the joint face does not need to be cleaned of rust, scale and other contaminants.

☒ TRUE ☒ FALSE

5.0 Composite wrap is recognized as a permanent repair alternative for corrosion, mechanical damage or other defects on high pressure pipelines.

☒ TRUE ☐ FALSE

6.0 A bolt on repair clamp must be checked for leaks at operating pressure.

☒ TRUE ☐ FALSE

7.0 A steel reinforcement sleeve is welded circumferentially around the pipe.

☐ TRUE ☒ FALSE

8.0 Stainless steel repair clamps do not require an anode.

☐ TRUE ☒ FALSE

9.0 When installing a bolt on sleeve, ensure that each end extends to a pipeline area where there is sound metal.

☒ TRUE ☐ FALSE

10.0 A bell joint clamp includes a strip of rubber that is installed to the face of the joint.

☒ TRUE ☐ FALSE

PASS ☒ / FAIL ☐

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 6.10 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [illegible] **DATE** 9/29/16

6.10 TAP A PIPELINE UNDER PRESSURE TEST

1.0 Hot taps are connections done while the facility is under gas pressure.

- [X] TRUE
- [ ] FALSE

2.0 General tapping components include which of the following? (Check all that apply)

- [X] Fitting
- [X] Drilling machine
- [X] Valve

3.0 During a hot tap the gas company is obligated to notify customers of potential gas outages.

- [ ] TRUE
- [X] FALSE

4.0 Which fitting is used for re-rounding thin walled pipe?

- [ ] Single flanged nozzle
- [X] Full encirclement fitting

5.0 The D-5 unit is capable of drilling holes 1/8" through 2-1/8" in any size main and under which pressure? (Check all that apply)

- [X] Medium pressure
- [X] Low pressure
- [X] High pressure

6.0 Large drilling machines are used for drilling out various fittings on pipe sized from _____ to 12" in diameter.

- [ ] 2 inches
- [ ] 4 inches
- [X] 3 inches
- [ ] 5 inches

7.0 A SAV is a best described as a fitting that _____.

- [X] Is used in place of an extra valve
- [ ] Is used on all pipe types, including polyethylene
- [ ] Is only installed on low pressure pipelines
- [ ] Is bolted into a pipeline

8.0 When should an operator confirm alignment and measurement for installation of a completion plug?

- [ ] After the tapping process
- [ ] Once approved by the supervisor
- [X] Before the fitting is tapped & contains live gas
- [ ] After the stopping process

9.0 An operator should confirm the tapping measurements by _____. (Check all that apply)

- [ ] A qualified engineer
- [X] Confirming the start measurement on the machine
- [X] Referring to the measurement card
- [ ] None of the above

10.0 Before the fitting is welded onto the pipe, the completion plug is removed.

- [X] TRUE
- [ ] FALSE

PASS [X] **/ FAIL** [ ]

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 6.11 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [signature] **DATE** 9/30/16

6.11 STOP FLOW IN A PIPELINE UNDER PRESSURE TEST

1.0 Which of the following is correct for the completion plug: (Check all that apply)

- ☐ Is set above the valve
- ☒ Is set and locked below the valve
- ☒ Once set, allows the valve to be removed after bleed off
- ☐ None of the above

2.0 It is a requirement to notify customers during a line stop.

- ☐ TRUE
- ☒ FALSE

3.0 A line stop begins with a hot tap.

- ☒ TRUE
- ☐ FALSE

4.0 The line stop actuator can be:

- ☐ Mechanical
- ☐ Hydraulic
- ☒ Either mechanical or hydraulic

5.0 Line stops after utillze a special full open valve called a _____ valve.

- ☐ Blind
- ☒ Sandwich
- ☐ SAV
- ☐ Diaphragm

6.0 How do mechanical stoppers work to stop the gas flow in a pipeline?

- ☒ They use a moveable diaphragm to block the flow
- ☐ They inflate inside the pipeline to block the flow
- ☐ They plug the tap hole to prevent escaping gas

7.0 For double bagging a low pressure system, the vent should be positioned in front of both bags.

- ☐ TRUE
- ☒ FALSE

8.0 Prior to plugging heat (stopper) removal, the isolated pipeline must be equalized to full line pressure.

- ☒ TRUE
- ☐ FALSE

9.0 Plugging head travel distance is confirmed with the measurement card.

- ☒ TRUE
- ☐ FALSE

10.0 Once plugging heads are set and the measurement is confirmed, precede with _____ of pipeline.

- ☒ Blow down
- ☐ By pass installation
- ☐ Completion plug set up
- ☐ Cutting out

PASS ☒ / **FAIL** ☐

WEST COAST GAS
INCORPORATED

OPERATOR QUALIFICATION - SECTION 6.12 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [redacted] **DATE** 9/30/16

6.12 TIE-IN SERVICE PIPE FROM MAIN TEST

1.0 Gas company service line is gas piping that transports natural gas from a common source of supply (main) to a customer's meter or the connection to customer's piping.

- [x] TRUE
- [ ] FALSE

2.0 Each service must have an accessible valve outside of the building.

- [x] TRUE
- [ ] FALSE

3.0 Only newly installed pipes need to be pressure tested prior to being placed in operation.

- [ ] TRUE
- [x] FALSE

4.0 If there is an excess flow valve (EFV), do not fully open the valve or the EFV will trip. Open it only _____ of a turn.

- [x] 1/8
- [ ] 1/2
- [ ] 1/4
- [ ] 3/4

5.0 Brass fittings are most commonly used off of a _____.

- [ ] PE main
- [ ] PE service
- [ ] Steel service
- [x] Cast/ductile iron main

6.0 After tapping a PE main properly, the tee cap should be installed and tightened with a wrench to prevent leakage.

- [ ] TRUE
- [x] FALSE

7.0 PE service pipe tie-ins to cast iron mains are connected by compression fittings or stab fittings.

- [x] TRUE
- [ ] FALSE

8.0 A tap-n-valve tee for a steel main tie-in is best described as a _____.

- [x] Welded tee that contains an internal cutter
- [ ] Welded tee that requires a hot tap machine
- [ ] Tee fused to the main with an internal cutter
- [ ] Tee threaded into the main with an internal stopper

9.0 A welded transition tee is used to transition from _____.

- [ ] Ductile iron to steel
- [ ] Cast iron to polyethylene
- [x] Steel to polyethylene
- [ ] Cast iron to steel

10.0 Which of the following is not a method used to tie-in polyethylene (PE) services from PE mains?

- [ ] Electrofusion
- [ ] Stab fitting
- [ ] Butt fusion
- [x] Insulated adapter

PASS [x] **/ FAIL** [ ]

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 6.13 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [illegible] **DATE** 9/30/16

6.13 PERFORM A HOT TAP ON A POLYETHYLENE PIPE TEST

1.0 Which of the following is not part of the PE hot tap tool?

- ☐ Drive shaft
- ☐ Gland fitting
- ☐ Ratchet wrench
- ☒ Plugging head

2.0 Proper tap tool measurement is measured from the shoulder of the _____ to the end of the "pup" piece of PE pipe.

- ☒ Branch saddle
- ☐ Valve
- ☐ Internal cutter
- ☐ Gland end cap

3.0 How do you know that a hot tap tool has successfully made a hole through the wall of the main?

- ☐ a) When less resistance is felt when turning the ratchet
- ☐ b) Gauge pressure decreases
- ☐ c) when you hear gas pressure flowing
- ☒ Both a and c

4.0 Where should the PE valve be positioned during the hot tap tool procedure?

- ☐ Between the main and branch saddle fitting
- ☐ Between the PE pup piece and hot tap tool
- ☒ Between the branch saddle and PE pup piece
- ☐ Between the movable and fixed clamps of the butt fusion machine

5.0 Incorrect measurement (tool length of saddle assembly and hot tap tool) can result in which of the following?

- ☐ Inability to tap the main completely
- ☐ Tapping through the opposite wall of the main
- ☐ No coupon retained in the internal cutter
- ☒ All of the above

6.0 During the hot tap operation the relief valve should be in the "closed" position.

- ☐ TRUE
- ☒ FALSE

7.0 The bearing housing of the hot tap tool should be tightened in the moveable clamp of the butt fusion machine.

- ☒ TRUE
- ☐ FALSE

8.0 During the hot tap procedure, the ratchet wrench is turned in a clock wise direction.

- ☒ TRUE
- ☐ FALSE

9.0 Prior to cutting and removing the hot tap tool, the PE valve should be closed and the test valve on the tap tool opened to bleed off pressure.

- ☒ TRUE
- ☐ FALSE

10.0 During the tapping tool removal the ratchet wrench must be only turned counter-clockwise.

- ☐ TRUE
- ☒ FALSE

PASS ☑ **/ FAIL** ☐

WEST COAST GAS INCORPORATED

OPERATOR QUALIFICATION - SECTION 6.14 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [redacted] **DATE** 9/30/16

6.14 SQUEEZE-OFF A PIPELINE TEST

1.0 Static electricity is always present with PE pipe.

☒ TRUE ☐ FALSE

2.0 A static charge can be generated by: (Check all that apply)

☒ Flowing gas velocity containing particles of scale, rust or debris

☒ Friction during the physical handling of PE pipe and tubing

☒ The geometrical change in pipe diameter while squeezing off

3.0 Static charges are only dangerous when arcing occurs (fire or explosion).

☒ TRUE ☐ FALSE

4.0 Before squeezing the pipe, the squeeze-off tool should be grounded and procedures to control static build-up on pipe surface should be employed

☒ TRUE ☐ FALSE

5.0 To prevent damage to PE while performing the squeeze-off procedure, closing and opening rates are key.

☒ TRUE ☐ FALSE

6.0 During squeeze-off, if equal space does not exist on both sides of the pipe you should _____.

☐ Call you supervisor ☐ Apply for static protection

☒ Re-center the squeeze tool ☐ Get a different squeeze tool

7.0 Scratches in excess of 10% of PE pipe wall must be positioned in the center of the squeeze tool (prior to squeeze-off).

☐ TRUE ☒ FALSE

8.0 What is cold flow stabilization time for a 4" PE pipe during squeeze-off when the outside temperature is 15 degrees?

☐ 60 minutes ☒ 8 minutes

☐ 30 minutes ☐ 4 minutes

9.0 With regard to squeeze-off location, squeeze the PE pipe a minimum of _____ pipe diameters away from fittings, fusion joints, or previous squeeze-off locations.

☐ one ☒ three

☐ two ☐ four

10.0 A squeeze tool is released at a maximum rate of 1/2" per minute.

☒ TRUE ☐ FALSE

PASS ☑ **/ FAIL** ☐

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 6.15 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [illegible] **DATE** 9/30/16

6.15 OPERATE AND MAINTAIN AN ODORIZER TEST

1.0 Natural gas is unodorized in its natural state. Companies add an odorant to gas in order to minimize the risks to public and employee safety and to comply with federal regulations.

- [x] TRUE
- [ ] FALSE

2.0 Odorants must be: (Check all that apply)

- [x] Non toxic
- [x] Relatively soluble in water
- [x] Non corrosive

3.0 According to the National Fire Protection Association (NFPA), which of the following does not apply to mercaptan?

- [x] Corrosive to pipelines
- [ ] Not reactive when mixed with water
- [ ] Flammable liquid flash point below 100 degrees F
- [ ] May be harmful if inhaled or absorbed

4.0 When a small spill of odorant occurs, covering it with dirt can decrease vapor escape.

- [x] TRUE
- [ ] FALSE

5.0 Two basic types of odorization equipment are liquid injection and vaporization.

- [x] TRUE
- [ ] FALSE

6.0 Injection rate is defined as the amount of injected odorant in pounds per volume of gas stated in million cubic feet (MMCF).

- [x] TRUE
- [ ] FALSE

7.0 Employees must be operator qualified to perform procedures associated with odorant tanks.

- [x] TRUE
- [ ] FALSE

8.0 With regard to safety, if an employee's clothing is wetted with odorant, what should the employee do?

- [ ] Apply bleach to clothes to reduce odor intensity
- [x] Immediately shower and change clothes
- [ ] Change clothes at the end of the work day
- [ ] Roll around in dry clay (cat litter) if available

9.0 Activated charcoal will chemically react with odorant and reduce the odor intensity (in the event of a spill).

- [ ] TRUE
- [x] FALSE

10.0 Mercaptan is an organic gas made of carbon, hydrogen and _____.

- [x] Sulfur
- [ ] Nitrogen
- [ ] Sodium
- [ ] Water

PASS [x] **/ FAIL** [ ]

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OPERATOR QUALIFICATION - SECTION 6.16 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [illegible] **DATE** 9/30/16

6.16 MONITOR ODORIZATION BY PERIODIC SAMPLING TEST

1.0 A distribution line must be odorized so that a concentration in air 1/5 of the lower explosive limit, the gas is readily detectable by a person with a normal sense of smell.

- [x] TRUE
- [ ] FALSE

2.0 Odor level testing machines should be calibrated annually or more frequently if required by a companies O&M procedures.

- [x] TRUE
- [ ] FALSE

3.0 The supply pressure of air dilution instruments should not exceed _____ psig, unless specified by the equipment manufacturer.

- [ ] 2 inches
- [x] 4 inches
- [ ] 6 inches
- [ ] 8 inches

4.0 The concentration of natural gas and odorant mixture in air in which the operator is barely able to detect an odor is the:

- [x] Threshold detection level
- [ ] Readily detectable level

5.0 Organize the steps for conducting an odor level test in their proper sequence: (1-5)

- [4] Take only 2 or 3 short sniffs at a time
- [2] Place nose over sniffing funnel
- [1] Turn on air blower
- [3] Slowly open the gas control valve until odor can be detected
- [5] Move nose away from the funnel and breath deeply to renew olfactory receptors

6.0 When conducting an odor level test, as a precaution, do not hold your nose over the sniffing funnel continuously.

- [x] TRUE
- [ ] FALSE

7.0 The smell of odorant is so strong it cannot be covered up or masked by other odors.

- [ ] TRUE
- [x] FALSE

8.0 When the operator is able to detect and identify natural gas odor, the concentration is known as the readily detectable level.

- [x] TRUE
- [ ] FALSE

9.0 Garlic or onions eaten the day of a sniff test can affect the sense of smell.

- [x] TRUE
- [ ] FALSE

10.0 Which of the following conditions can affect an employee's ability to accurately monitor natural gas odorization levels?

- [ ] Colds and other physical conditions
- [ ] Contaminants in gas and odorizer
- [x] Failure of odorization equipment
- [ ] All of the above

PASS [x] / **FAIL** [ ]

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OPERATOR QUALIFICATION - SECTION 6.17 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [redacted] **DATE** 9/30/16

6.17 CONDUCT AN INSIDE LEAK INVESTIGATION TEST

1.0 It is possible that a gas leak can be masked by other odors.

- [x] TRUE
- [ ] FALSE

2.0 Possible sources of ignition include: (Check all that apply)

- [x] Doorbells
- [x] Appliances
- [x] Cell Phones
- [x] Land line telephones
- [ ] Intrinsically safe flashlights
- [x] Smoke detectors
- [x] Light switches
- [x] Garage door openers

3.0 If gas is found upon entry to a building, which step should be immediately taken:

- [x] Evacuate the building
- [ ] Shut off the customer's service
- [ ] Call the fire department
- [ ] Call you supervisor

4.0 Which of the following is an incorrect statement when entering a building during a leak investigation?

- [ ] Knock on door, don't ring bell
- [x] Inform customer to turn off all electrical switches
- [ ] Test atmosphere immediately with CGI (upon entering)
- [ ] Question the customer

5.0 A CGI must be used to verify and classify all leaks.

- [x] TRUE
- [ ] FALSE

6.0 Always zero a CGI in a gas free atmosphere before entering a building.

- [x] TRUE
- [ ] FALSE

7.0 A reading of 100% LEL corresponds to a reading of _____ natural gas in air.

- [ ] 3%
- [x] 5%
- [ ] 4%
- [ ] 6%

8.0 When responding to an odor complaint, you do not need to consider it a hazardous condition until you conduct testing.

- [ ] TRUE
- [x] FALSE

9.0 A range of 5% to 15% LEL is required to support combustion.

- [x] TRUE
- [ ] FALSE

10.0 A meter registration test to determine if gas is leaking, is performed by using the meter index half foot dial.

- [x] TRUE
- [ ] FALSE

PASS [x] / **FAIL** [ ]

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OPERATOR QUALIFICATION - SECTION 6.18 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME Brian Patrick **DATE** 10/5/16

6.18 INVESTIGATE AND CLASSIFY AN OUTSIDE LEAK TEST

1.0 A confined space is any subsurface structure (e.g. vaults, tunnels, catch basins, manholes) of sufficient size to accommodate a person and in which natural gas could accumulate.

☒ TRUE ☐ FALSE

2.0 During an outside leak investigation, adjacent buildings should be checked on both sides of the street at what locations? (Check all that apply)

☐ At building wall
☒ Over the gas main
☒ At the curb
☒ At the opposite curb
☒ At the nearest centerline sewer

3.0 A leak that represents a probable hazard to people or property, and requires immediate repair or continuous action.

☒ Grade 1 ☐ Grade 2 ☐ Grade 3

4.0 A gas leak of 10%LEL in a confined space is an example of a Grade 3 leak.

☒ TRUE ☐ FALSE

5.0 A reading of 80% natural gas will result in combustion.

☐ TRUE ☒ FALSE

6.0 Aerating equipment is used to: (Check all that apply)

☐ Drill bar holes
☒ Prevent the migration of gas into other areas
☒ Remove residual gas from the ground after leak repairs are completed
☒ Remove gas from the soil and allow more accurate pinpointing of leaks

7.0 Which leak is recognized as being non hazardous at the time of detection, but must be rechecked once every 30 days?

☐ Grade 1 ☒ Grade 2 ☐ Grade 3

8.0 It is very important not to use your own judgment in classifying leaks.

☐ TRUE ☒ FALSE

9.0 If gas readings are found in a centerline sewer, all buildings in the vicinity should be checked inside for the presence of gas.

☒ TRUE ☐ FALSE

10.0 A combustible gas indicator (CGI) is used to: (Check all that apply)

☒ Classify gas leaks
☒ Verify and pinpoint gas leaks
☒ Determine the extent of gas leak migration
☒ Measure gas concentration.

PASS ☑ / **FAIL** ☐

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OPERATOR QUALIFICATION - SECTION 6.19 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [signature] **DATE** 10/5/16

6.19 CONDUCT A WALKING LEAK SURVEY TEST

1.0 Wall to wall paved areas on both sides of the street would be considered a business district, which by Federal Code requires a leak survey once every five years.

☐ TRUE ☒ FALSE

2.0 A Building of Public Assembly (BPA) is defined as a place of gathering of _____ or more people in one room

☐ 50 ☐ 150

☐ 100 ☒ 200

3.0 To confirm that the hydrocarbon found is natural gas, a combustible gas indicator (CGI) must be utilized.

☒ TRUE ☐ FALSE

4.0 FI units are intrinsically safe for inside use.

☐ TRUE ☒ FALSE

5.0 When the Heath Detecto Pak 4 flame out alarm stops, it indicates that the unit has ignited.

☒ TRUE ☐ FALSE

6.0 A "Z" search pattern is typically used when performing a leak survey in a business district.

☐ TRUE ☒ FALSE

7.0 Flame ionization instruments require fuel cylinders containing 40% hydrogen and _____.

☐ 60% acetylene ☐ 60% methane

☒ 60% nitrogen ☐ 60% oxygen

8.0 Which of the following factors effect leak survey results? (Check all that apply)

☒ Frost ☒ Soil moisture

☒ Pipe depth ☒ Type of cover (asphalt, concrete)

9.0 An FI instrument filter should be replaced daily, or more often if dirty, contaminated or wet.

☒ TRUE ☐ FALSE

10.0 Regulator code requires that residential areas are leak surveyed once each calendar year, at intervals not exceeding 15 months.

☐ TRUE ☒ FALSE

PASS ☐ / **FAIL** ☐

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OPERATOR QUALIFICATION - SECTION 6.21 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [illegible] **DATE** 10/5/16

6.21 LOCATE UNDERGROUND PIPELINES TEST

1.0 For inserted gas mains, the sizes and type of both the casing pipe and carrier pipe should be marked by the locator.

☒ TRUE ☐ FALSE

2.0 It is the locator's responsibility to record and report any inaccurate information between existing records and actual field conditions.

☒ TRUE ☐ FALSE

3.0 A sufficient number of locate marks should be made over mains and services for excavations throughout the area of construction.

☒ TRUE ☐ FALSE

4.0 Lot lines are normally _____ behind the side walk.

☐ 24 Inches ☐ 16 Inches

☐ 18 inches ☒ 12 inches

5.0 This method of direction connection eliminates a signal interference and therefore is the preferred method.

☒ Conductive ☐ Inductive

6.0 This frequency works best on lines that conduct easily.

☐ High frequency ☒ Low frequency

7.0 For the conductive method, grounding may be improved by wetting the area with water.

☒ TRUE ☐ FALSE

8.0 The null method results in the loudest tone over the target pipeline.

☐ TRUE ☒ FALSE

9.0 What do white markings at an excavation site represent?

☐ A locator ran out of yellow marking paint

☐ That a high voltage power line is buried underground

☒ An excavator pre-marked where proposed excavation activity would occur

☐ None of the above

10.0 What should a locator do if no gas facilities are involved at a proposed excavation site?

☐ Do nothing at the excavation site

☐ Call the Engineering Department for verification of facilities

☐ Immediately go to the next job to locate facilities

☒ Print "NO GAS" where excavation is to occur and communicate this to excavator

PASS ☒ / FAIL ☐

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OPERATOR QUALIFICATION - SECTION 6.24 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (8 Correct Answers)

NAME [signature] **DATE** 10/5/16

6.24 REPAIR/TIE-IN POLYETHYLENE PIPE TEST

1.0 To maintain compliance with Part 192, Subpart N, when repairing plastic pipe, each imperfection or damage that would impair the serviceability of plastic pipe must be repaired or removed.

- [x] TRUE
- [ ] FALSE

2.0 When pipe (containing natural gas) is being flattened during the squeeze off procedure, the gas flow velocity through the flattened area _____.

- [ ] Increased
- [x] Decreases

3.0 _____ squeezing the pipe, the tool should be grounded and procedures to control static charge build-up on pipe surfaces should be employed.

- [x] Before
- [ ] After

4.0 Grounding and static control procedures should remain in place for the entire repair/replacement procedure.

- [x] TRUE
- [ ] FALSE

5.0 A steel repair clamp can be used as a temporary repair method for PE pipe.

- [x] TRUE
- [ ] FALSE

6.0 A tie-in with the hot tap procedure requires which of the following fittings?

- [ ] Excess flow valve
- [x] Branch saddle
- [ ] Tapping tee
- [ ] All of the above

7.0 Scratches in excess of _____% of the PE wall thickness must be cut out.

- [ ] 5
- [ ] 2
- [x] 10
- [ ] All of the above

8.0 When stopping a PE gas line with flow in both directions, a bypass must be installed around the section that needs isolation when the squeeze-off procedure is employed.

- [ ] TRUE
- [ ] FALSE

9.0 When extending a branch connection with the hot tap procedure, a PE valve is required.

- [ ] TRUE
- [x] FALSE

10.0 PE full encirclement repair sleeves are installed over the repair area with the electrofusion process.

- [x] TRUE
- [ ] FALSE

PASS [x] **/ FAIL** [ ]

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OPERATOR QUALIFICATION - SECTION 7.1 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [signature] **DATE** 10/5/16

7.1 REGULATOR OPERATION AND FUNDAMENTAL TEST

1.0 The purpose of a regulator is to hold downstream pressure constant while flowing enough gas to meet upstream demand.

- ☐ TRUE
- ☒ FALSE

2.0 The three essential elements in a regulator include all of the following *EXCEPT*:

- ☐ Loading element
- ☐ Restricting element
- ☒ Venting element
- ☐ Measuring element

3.0 The spring is part of the _____ element.

- ☐ Measuring
- ☒ Loading
- ☐ Venting
- ☐ Restricting

4.0 A _____ spring results in more regulator activity.

- ☒ Lighter
- ☐ Heavier

5.0 To maintain a steady flow through the orifice or valve, the velocity must be _____ at the Vena Contracta.

- ☒ Highest
- ☐ Lowest

6.0 _____ is the pressure above set point required to shut the regulator off tight.

- ☐ Droop
- ☐ Capacity
- ☒ Lockup

7.0 Increasing orifice size decreases capacity.

- ☐ TRUE
- ☒ FALSE

PASS ☑ **/ FAIL** ☐

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OPERATOR QUALIFICATION - SECTION 7.2 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [signature] **DATE** 10/5/16

7.2 UPRATE THE PRESSURE ON A PIPELINE SYSTEM TEST

1.0 Uprating is the process of increasing the maximum allowable operating pressure (MAOP) of a pipeline that is not being used to its full design capacity.

- [x] TRUE
- [ ] FALSE

2.0 Uprating will increase maintenance costs.

- [ ] TRUE
- [x] FALSE

3.0 The system MAOP cannot exceed the MAOP of the highest rated attached pipeline component or the system design test pressure.

- [ ] TRUE
- [x] FALSE

4.0 Federal code does not require a written procedure be prepared prior to uprating a pipeline.

- [ ] TRUE
- [x] FALSE

5.0 The uprating process includes all of the following: (Check all that apply)

- [x] Pressure increase
- [x] Uprate plan
- [x] Preliminary investigation
- [x] Preliminary work
- [x] Documentation

6.0 As part of examining pipeline components to prepare for uprating, conduct a survey of outside regulator sets to verify that any compression fitting ahead of the regulator or meter is properly restrained.

- [x] TRUE
- [ ] FALSE

7.0 The uprating process applies to:

- [ ] Services
- [x] Both
- [ ] Mains

PASS [x] **/ FAIL** [ ]

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 7.3 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (9 Correct Answers)

NAME [illegible] **DATE** 10/5/16

7.3 OPERATE AND TEST OVERPRESSURE PROTECTION TEST

1.0 The purpose of overpressure protection is to maintain the pressure downstream of a regulator to a safe maximum value.

- [x] TRUE
- [ ] FALSE

2.0 Safe operating pressure defines both the high limit and the low limit.

- [x] TRUE
- [ ] FALSE

3.0 The following are types of relief valves used in overpressure protection: (Check all that apply)

- [ ] Slam shuts
- [x] Pilot operated
- [x] Pop type
- [x] Internal relief
- [x] Self operated

4.0 Relief valves can be used in any location.

- [ ] TRUE
- [x] FALSE

5.0 Relief valves provide all of the following advantages: (Check all that apply)

- [x] Keeps customers in service
- [x] Not subject to blockage
- [ ] Relief valve venting could cause hazard
- [ ] Requires periodic testing and maintenance
- [x] Minimal cost
- [x] No decrease in the regulator capacity
- [x] Most reliable overpressure type

6.0 Monitor regulators contain the gas rather than venting it to the atmosphere.

- [x] TRUE
- [ ] FALSE

7.0 Monitoring regulators provide all of the following advantages: (Check all that apply)

- [x] No venting of gas into atmosphere
- [x] Customer stays on line
- [ ] Design requires two regulators
- [ ] Subject to blockage
- [x] Downstream pressure kept close to set point
- [x] Testing is easy and safe

8.0 The shut off device provides overpressure protection by containment as it shuts off completely until the cause of the malfunction is determined.

- [x] TRUE
- [ ] FALSE

9.0 Security valves are _____ reset.

- [ ] Automatically
- [x] Manually

10.0 The set point of a safety valve is always _____ the set point of the slam shut valve.

- [ ] Higher than
- [x] Lower than
- [ ] The same as

11.0 Pressure relief and limiting devices must be inspected and tested at intervals not exceeding once every 3 years.

- [ ] TRUE
- [x] FALSE

PASS [x] **/ FAIL** [ ]

WEST COAST GAS
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OPERATOR QUALIFICATION - SECTION 7.4 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (7 Correct Answers)

NAME [redacted] **DATE** 10/7/16

7.4 CONTROL AND MONITOR GAS PRESSURE AND FLOW TEST

1.0 To monitor and control pipeline gas pressure and flow, operators must have a basic understanding of: (Check all that apply)

- [x] Pressure and flow gas principles
- [x] Gas measurement units
- [x] Gas metering

2.0 To increase the quantity of gas in a distribution system, the pressure must increase.

- [x] TRUE
- [ ] FALSE

3.0 Natural gas contracts when heated and expands when cooled.

- [ ] TRUE
- [x] FALSE

4.0 The following statements are true about alerts *except*:

- [ ] Does not require immediate action
- [x] Requires immediate attention
- [ ] Should never be safety related
- [ ] Always lower priority than alarms

5.0 Click on the devises that may be used to meter gas. (Check all that apply)

- [x] Turbine meter
- [x] Transducer
- [x] Orifice meter
- [x] Ultrasonic meter
- [x] Positive displacement meter

6.0 SCADA is a system that monitors which of the following? (Check all that apply)

- [x] Flow rates
- [ ] Corrosion
- [x] Pressure
- [x] Odorization rates
- [x] Temperature
- [x] Gas quality (including energy content)

7.0 In pressure control mode, the control valve is automatically adjusted to maintain a constant (metered) flow rate.

- [ ] TRUE
- [x] FALSE

8.0 MAOP is the highest pressure at which a pipeline may be operated as defined in the Federal Code.

- [x] TRUE
- [ ] FALSE

9.0 Fatigue mitigation includes which of the following: (Check all that apply)

- [x] Educate controllers and supervisors in fatigue mitigation strategies
- [x] Establish a maximum limit on hours of service that allows for emergencies
- [ ] Allow off duty time sufficient for 2 hours continuous sleep
- [x] Train controllers and supervisors to recognize the effects of fatigue
- [x] Establish shift lengths and schedules

PASS [x] **/ FAIL** [ ]

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OPERATOR QUALIFICATION - SECTION 7.5 TEST

Supersedes All Previous Dates

Start Date: October 14, 2015

Canceling Date:

Score of 80% or higher qualifies as a pass (6 Correct Answers)

NAME [redacted] **DATE** 10/7/16

7.5 INSPECT AND MAINTAIN A REGULATOR VAULT TEST

1.0 Vaults that contain pressure regulating and pressure limiting equipment, and have an internal volume of _____ cubic feet or more, must be inspected at intervals not exceeding 15 months but at least once each calendar year.

- ☐ 150
- ☒ 200
- ☐ 250
- ☐ 300

2.0 Organize the steps for inspecting and maintaining a regulator vault in their proper sequence. (1-8)

- 8 Complete required documentation
- 6 Perform internal inspection of regulators
- 1 Gain access to pressure regulators
- 5 Bypass and test regulators
- 2 Inspect vault and pressure regulator station schematics
- 7 Inspect and clean or replace filters
- 3 Review charts or gauge readings for abnormal conditions
- 4 Inspect associated piping and station equipment

3.0 Any subsurface structure of a sufficient size to accommodate a person and in which natural gas could accumulate is a confined space.

- ☒ TRUE
- ☐ FALSE

4.0 When inspecting vault and pressure regulator station schematics, ensure that: (Check all that apply)

- ☒ Station doors, vault covers and locking devices are functioning properly, free from obstructions and are accessible
- ☒ Vaults, manholes and pits are in good condition, show no indication of settlement and will allow proper operation of installed equipment
- ☒ Vault covers don't present a hazard to vehicles/pedestrians
- ☒ Station schematics are correct verifying address location, layout and components

5.0 If regulator station outlet pressure is above its MAOP, the action should be to reduce pressure immediately to normalize system pressure.

- ☒ TRUE
- ☐ FALSE

6.0 Organize the steps for performing an internal inspection of a regulator in their proper sequence. (1-8)

- 2 Disassemble regulator
- 5 Replace worn parts
- 4 Adjust or replace orifice seats as needed
- 6 Reassemble regulator and test operation
- 3 Inspect/clean debris from internal components
- 8 Return regulator to service and adjust set point
- 7 Re-gas isolated segment and check for leaks
- 1 Isolate regulator from system, bleed pressure

7.0 Monitor _____ pressure continually during bypass operation.

- ☐ Upstream
- ☒ Downstream

PASS ☒ **/ FAIL** ☐