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September 17, 2007

VIA FEDERAL EXPRESS AND CERTIFIED MAIL, R/R/R

Mr. Jeffrey D. Wiese
Associate Administrator for Pipeline Safety
Pipeline Compliance Registry
Office of Pipeline Safety
Pipeline and Hazardous Materials Safety Administration
United States Department of Transportation
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

Re: CPF No. 4-2005-8004; Petition for Reconsideration

Dear Mr. Wiese:

Please find enclosed Enbridge Energy Company, Inc.'s Petition for Reconsideration of the Final Order received from your office on August 29, 2007. Please feel to call me at (713) 651-3760 if you have any questions.

Very truly yours,



Edward C. Lewis

ECL/jnb

**DEPARTMENT OF TRANSPORTATION
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION
OFFICE OF PIPELINE SAFETY
WASHINGTON, D.C. 20590**

_____)	
In the Matter of)	
)	
Enbridge Energy Company, Inc.,)	CPF No. 4-2005-8004
)	
Respondent)	
_____)	

PETITION FOR RECONSIDERATION

Respondent, Enbridge Energy Company, Inc. ("Enbridge") files this Petition for Reconsideration of a Final Order (the "Final Order") issued in this matter, under 49 C.F.R. § 190.215, on August 22, 2007, which Enbridge received on August 29, 2007.¹ In support thereof, Enbridge respectfully shows the Associate Administrator of the Office of Pipeline Safety the following:

Brief Statement of the Complaint

Enbridge asserts that the decision reached in the Final Order is not supported by the record in this matter, and that this Petition for Reconsideration should be granted. Specifically, Enbridge contends:

- 1) The Final Order does not seek to find Enbridge in violation of the two allegations set forth in the April 18, 2005 Notice of Probable Violation. Instead, the Final Order raised allegations, sua sponte, and seeks to hold Enbridge in violation of those allegations that have never been brought to Enbridge's notice, in violation of Enbridge's due process rights;
- 2) Pipeline and Hazardous Materials Safety Administration ("PHMSA") failed to meet its burden of proof for either the originally proposed or newly alleged violations; and
- 3) PHMSA failed to meet its burden of proof regarding the assessment of a penalty.

Enbridge requests that the Associate Administrator grant this Petition for Reconsideration and stay the effectiveness of the Final Order to allow for further proceedings in this matter. See

¹ Enbridge has enclosed an Affidavit of Mr. David McQuade, which confirms the date of Enbridge's receipt of the Final Order. The Affidavit also confirms Enbridge's authorization of Fulbright & Jaworski L.L.P. to represent Enbridge in this matter and to file this Petition for Reconsideration. This Affidavit is attached hereto as Exhibit A.

49 C.F.R. § 190.215(a). Enbridge further requests that the Associate Administrator find that Enbridge did not commit the violations alleged in this matter, as set forth in the Notice of Probable Violation. In the alternative, Enbridge requests that the Associate Administrator find that a penalty is not warranted in this matter or that the penalty be reduced from the amount assessed in the Final Order.

PHMSA's rules require that Enbridge explain why the arguments raised in this petition were not presented prior to the issuance of the Final Order. 49 C.F.R. § 190.215(b). This Petition for Reconsideration represents the first opportunity for Enbridge to raise these issues due to the manner in which the record was considered and allegations were raised, sua sponte, without providing the required notice and opportunity for hearing to Enbridge.

Background

On November 17-18, 2004, PHMSA representatives conducted an on-site pipeline safety inspection at Enbridge's headquarters in Houston, Texas. The inspection focused on Enbridge's operator qualification ("OQ") program and its records regarding that program. Enbridge did not receive a copy of the inspection report.

On April 18, 2005, PHMSA issued a Notice of Probable Violation ("Notice"), which included a proposed penalty of \$100,000, and proposed corrective measures to be taken by Enbridge to address the alleged violations. The Notice is attached hereto as Exhibit B. The Notice alleged that Enbridge committed two violations of 49 C.F.R. §§ 192.805 and 195.505 based on the following allegations:

- 1) Enbridge's written OQ plan "did not address any covered tasks that were performed on the hazardous liquid portions of their facilities. It was noted that the plan had not been revised since Enbridge TGS acquired hazardous liquid facilities"; and
- 2) A review of the list of tasks considered "not covered" on Enbridge's natural gas OQ plan "revealed a large number of tasks that should have been considered 'covered tasks'."

See Notice, p. 2. PHMSA included five "areas of concern" in its Notice that were not cited as violations.

On May 18, 2005, Enbridge filed its response ("Response") to the Notice. The Response is attached hereto as Exhibit C. The Response contested the alleged violations, requested that the proposed penalty be eliminated or reduced, and requested an informal hearing on the matter. Enbridge's Response included information regarding Enbridge's OQ program for its hazardous liquid pipelines after Enbridge TGS acquired hazardous liquid facilities (Exhibit C-1);² a log showing a list of revisions made to Enbridge's OQ programs (Exhibit C-2); Enbridge's "Covered Task" list justification showing Enbridge's application of PHMSA's four-part "covered task" test

² Enbridge is submitting two documents, which together comprise Exhibit C-1. The OQ Plan in effect at the time of the inspection was the OQ Plan dated April 27, 2001, as amended by the revisions dated November 2004.

to determine which tasks were covered (Exhibit C-3);³ and an example of Enbridge's employee performance and qualification records (Exhibit C-4). Enbridge reserved its right to a hearing if PHMSA and Enbridge could not reach an agreement to resolve the matter.

Enbridge submitted a revised OQ program in June 2005 to address the areas of concern included in PHMSA's Notice. A copy of the revised OQ program is attached as Exhibit D. PHMSA approved the revisions on June 24, 2005. PHMSA's approval is attached as Exhibit E.

On October 11, 2005, Enbridge set forth its request for a hearing in detail and asserted four issues:

- Enbridge's liquid systems and covered tasks were addressed in Enbridge's OQ Plan
- Enbridge had made numerous revisions to the OQ Plan since it acquired hazardous liquid facilities, and these revisions had been documented by Enbridge.
- The tasks that Enbridge had considered as "not covered" in the OQ Plan are justified by the application of PHMSA's four-part "covered task" test noted in 49 C.F.R. 192.801(b).
- Enbridge had developed a revised OQ Plan that addressed the areas of concern raised by PHMSA in its Notice.

On October 19, 2005, Enbridge sent correspondence requesting an update from PHMSA regarding the case and asked PHMSA to advise Enbridge if further information was necessary to allow PHMSA to continue its review of the case. Enbridge did not receive a written response to this request from PHMSA.

Based on a February 1, 2006 conversation with PHMSA, Enbridge withdrew its request for a hearing on February 3, 2006. But, Enbridge did not withdraw its assertion that it did not commit the alleged violations or that the penalty should be eliminated or reduced, as supported materials previously provided to PHMSA by Enbridge.⁴

Bases for Petition for Reconsideration

I. Consideration of New Allegations without Notice to Enbridge Violated Enbridge's Due Process Rights

Rather than being based on the allegations made by PHMSA in the Notice, the Final Order is based on allegations, raised for the first time in the Final Order, that Enbridge did not identify in its OQ plan each covered task performed on Enbridge's natural gas and hazardous liquid pipelines. Prior to Enbridge's receipt of the Final Order, Enbridge received no notice that the basis for the allegations against it had been changed, and Enbridge has never been provided

³ See 49 C.F.R. § 192.801(b), 195.501(b).

⁴ On February 3, 2006, Enbridge again provided PHMSA with a copy of its revised operator qualification program with this correspondence.

an opportunity to submit evidence to address the new allegations set forth in the Final Order. The Final Order is based solely on these new allegations. The actions in this regard violated Enbridge's due process rights. See Section II below for a discussion of the original allegations in the Notice and the new allegations in the Final Order.

The requirement of notice and a fair opportunity to be heard is a basic underpinning of administrative law. *Chocolate Mfrs. Ass'n of the United States v. Block*, 755 F.2d 1098, 1102 (4th Cir. 1985). The notice requirement encompasses both the opportunity to be heard and the opportunity to know the claims to be made by the agency in the hearing. A party in an agency proceeding is entitled to know the issues on which an agency's decision will turn and to be apprised of the factual material on which the agency relies so that the party may rebut it. *Williston Basin Interstate Pipeline Co. v. F.E.R.C.*, 165 F.3d 54, 63 (D.C. Cir. 1999). The Due Process Clause "forbids an agency to use evidence in a way that forecloses an opportunity to offer a contrary presentation." *Bowman Transp., Inc. v. Arkansas-Best Freight System, Inc.*, 419 U.S. 281, 288 n.4, 95 S.Ct. 438, 42 L.Ed.2d 447 (1974).

By raising new allegations and failing to provide Enbridge with an opportunity to contest the new allegations, the Associate Administrator violated Enbridge's due process rights. Based on these facts, Enbridge is entitled to a rehearing of this matter so that it may have an opportunity to contest the new allegations raised by the Associate Administrator.

II. PHMSA Failed to Meet its Burden of Proof regarding the Occurrence of Either the Originally Proposed or Newly Alleged Violations

It is well-recognized that the Government has the burden of proof in its enforcement cases. 5 U.S.C. § 556(d). "A sanction may not be imposed ... except on consideration of the whole record or those parts thereof cited by a party and supported by and in accordance with the reliable, probative and substantial evidence." *Id.*

In this case, PHMSA had the burden of proving, by a preponderance of the evidence, that Enbridge committed the violations alleged by PHMSA in its Notice. See *Sea Island Broadcasting Corp. of South Carolina v. F.C.C.*, 627 F.2d 240, 243 (D.C. Cir. 1980). The only evidence presented by PHMSA in the record is the inspection report. This report was not provided to Enbridge, and Enbridge had no opportunity to contradict any issues raised therein.

The only other document entered by PHMSA into the record was its Notice. PHMSA's Notice constitutes allegations of violations but does not constitute evidence in and of itself. It is a pleading or an assertion of alleged facts, not evidence or proof of the truth of the assertion.

From the date of the inspection, Enbridge has contested the allegations included in PHMSA's Notice of Probable Violation. Enbridge submitted information addressing each allegation made by PHMSA in the Notice.

PHMSA failed to rebut any of the evidence submitted by Enbridge. As such, PHMSA failed to meet its burden of proof with respect to the occurrence of any of the alleged violations. These issues are discussed in further detail below in the context of the specific allegations raised by PHMSA in its Notice.

Hazardous Liquid Pipeline Qualification Program

PHMSA's First Allegation in the Notice

PHMSA's Notice of Probable Violations contained two alleged violations. The first alleged that Enbridge's Qualification Plan "did not address any covered tasks that were performed on the hazardous liquid portions of their facilities. It was noted that the plan had not been revised since Enbridge TGS acquired hazardous liquid facilities."

In opposition to the inspection report, Enbridge submitted clear evidence showing that hazardous liquid systems are addressed in Enbridge's qualification program; and that Enbridge had revised its qualification program on numerous occasions to address hazardous liquid systems and to make other necessary changes. PHMSA did not rebut Enbridge's evidence.

Indeed, the Associate Administrator acknowledged that neither allegation with respect to Enbridge's OQ plan for the hazardous liquid pipelines was supported by the evidence. Enbridge provided documentation showing that Enbridge's Qualification Plan addressed hazardous liquid pipelines and the Associate Administrator confirmed that Enbridge's Plan included "references to its hazardous liquid pipelines and the applicable regulations." Further, the Associate Administrator confirmed that the Qualification Plan had been revised numerous times since the acquisition of the hazardous liquid facilities, most recently in November 2004, according to the record.

To further support its position in this regard, Enbridge notes that the OQ plan in effect at the time of the inspection expressly states that its liquid lines and liquid crude lines "are also subject to the requirements of this OQ Plan." OQ Plan, Section 1.1. The Plan further states, "... for specific pipeline operations that include liquid lines, 49 CFR Part 195, Subpart G, apply." *Id.* The clear intent is for the OQ Plan to address PHMSA's requirements for natural gas and hazardous liquid pipelines.

For purposes of ensuring that the record is complete, Enbridge has attached, as Exhibit C-1, a copy of the OQ Plan in effect at the time of PHMSA's inspection. Portions of Exhibit C-1 are highlighted to note the references to hazardous liquid lines, whether the reference is specific or established by definition. The Associate Administrator will note that the OQ plan, as entitled, specifically addresses "Crude Oil Pipeline Systems." *See* Exhibit C-1, cover page.

Additional references to hazardous liquid pipelines are specifically included in Sections 1.2 to define the purpose of the plan; Section 1.3(6), (7), (8) to define Pipe, Pipeline and Pipeline facility; and Section 3.2 to define Covered Tasks. *See* Exhibit C-1, pp. 1-2, 4-5. Based on the scope of these defined terms, Enbridge made specific references to hazardous liquid pipelines throughout the OQ plan. In addition, liquid lines are specifically referred to in the description of knowledge elements that were identified by Enbridge as being necessary for an individual to be qualified for one or more covered tasks. *See* Exhibit C-1, Knowledge Requirements K1.A, K2.A, K28.A, K34.A, K39.A, K40.A, K44.A, and K46.A.

As the Associate Administrator noted in the Final Order, references to liquid lines are included in the evaluation requirements for covered tasks. *See* Final Order, p. 2. In addition, this section of the Plan includes a statement that, "In cases when individuals are qualifying on liquid

pipeline systems, natural gas specified evaluations such as K1 should be substituted with the liquid specific evaluations such as K1.A.” See Exhibit C-1, Introduction to “Evaluation Requirements for Covered Tasks.”

Based on its failure to meet its burden of proof on the allegations included in its Notice of Probable Violation related to Enbridge’s Hazardous Liquid Pipeline Qualification Program, and the Associate Administrator’s acknowledgement that covered tasks for hazardous liquids were covered by Enbridge’s OQ Plan, this alleged violation should be dismissed and no penalty should be assessed against Enbridge.

New Allegation in the Final Order

Although the Associate Administrator confirmed that PHMSA’s allegations were not supported by the facts, the Final Order, sua sponte, alleged and determined that Enbridge’s OQ Plan was not sufficient with respect to the hazardous liquid pipelines. The Final Order found that Enbridge identified only two specific covered tasks that pertained to hazardous liquid pipelines.

The record shows that Enbridge made specific revisions to its existing Natural Gas Pipeline OQ Program to create a program that complied with both sets of regulatory requirements. These revisions are set forth above. The record demonstrates that Enbridge identified the covered tasks applicable to its hazardous liquid pipelines and met the requirements of 49 C.F.R. § 195.505. This violation, as alleged in the Notice and as revised by the Final Order, should be dismissed.

Natural Gas Pipeline Qualification Program

PHMSA’s Second Allegation in the Notice

The second allegation brought by PHMSA in the Notice alleged that the list of tasks considered “not covered” on Enbridge’s natural gas OQ plan included “a large number of tasks that should have been considered ‘covered tasks.’”

At the time of the inspection, Enbridge had developed and implemented a Natural Gas Pipeline OQ Program that identified the covered tasks being performed on its natural gas pipelines. Enbridge had also performed an in-depth analysis of other tasks and determined that those tasks were not “covered tasks.” Enbridge’s analysis was based on PHMSA’s four-part “covered task” test. Under the test, a “covered task” is “an activity, identified by the operator, that:

- Is performed on a pipeline facility;
- Is an operations or maintenance task;
- Is performed as a requirement of this part; and
- Affects the operation or integrity of the pipeline.”

49 C.F.R. § 192.801(b).

For each task, Enbridge defined the activity, applied the “covered task” test, and made a determination as to whether the task was a “covered task.” Enbridge incorporated into its analysis a consideration of the original intent of the negotiated rulemaking committee that PHMSA used to develop the OQ regulations.

PHMSA alleged generally that “a large number” of the tasks determined by Enbridge to be non-covered tasks should have been “covered tasks.” PHMSA did not provide any specific information to Enbridge to identify which tasks were in dispute, nor did PHMSA provide Enbridge a copy of the inspection report.

Enbridge submitted its task-by-task analysis to PHMSA in an attempt to resolve the issue. *See* Exhibit C-3. Enbridge’s analysis reflected an in-depth review of PHMSA’s requirements and an effort to comply with the original intent of the negotiated rulemaking committee that drafted the rules at issue in this matter. Portions of Exhibit C-3 are highlighted to note the references to Enbridge’s consideration of the original intent of the negotiated rulemaking committee. PHMSA did not respond to Enbridge regarding this submission, and presented no evidence to rebut any of Enbridge’s detailed analysis.

Based on its failure to meet its burden of proof on the allegation included in its Notice of Probable Violation related to the non-covered tasks associated with Enbridge’s natural gas pipelines, this alleged violation should be dismissed and no penalty should be assessed against Enbridge.

New Allegation in the Final Order

The Final Order failed to include an analysis of Enbridge’s non-covered task determinations. Instead, it focused on the differences between the OQ plan in effect at the time of PHMSA’s inspection and a revised OQ plan submitted by Enbridge in June 2005.

As explained above, Enbridge submitted a revised OQ plan to address “areas of concern” that were raised at the conclusion of PHMSA’s Notice. PHMSA did not allege that these “areas of concern” constituted alleged violations of 49 C.F.R. § 192.805, nor did PHMSA’s Notice seek a penalty related to the areas of concern. The “areas of concern” included a statement that Enbridge “had titled some covered tasks so the intent of the covered tasks is not fully understood. Inspection, testing, operation and maintenance functions, where appropriate, should be clearly indicated.” To respond to this statement, Enbridge revised its OQ plan to break out the inspection, testing, operation and maintenance functions that had previously been reflected in a single task, so that each function was included in the OQ plan as a separate task. *See* Exhibit D.

The Final Order identified these “new” covered tasks as evidence that Enbridge’s OQ plan was insufficient at the time of the inspection. Based on this analysis, the Final Order determined that Enbridge violated 49 C.F.R. § 192.805. The Final Order is not supported by the evidence.

in attempting to achieve compliance. Enbridge provided this information in response to the Notice and the information contested both the occurrence of a violation and the appropriate penalty that should be assessed if any violation occurred.

The Final Order failed to address any of the information submitted by Enbridge, and failed to make any adjustment in the proposed penalty as is supported by the record in this matter. Therefore, this Petition for Reconsideration should be granted.

Nature, Circumstances, and Gravity of the Violation

PHMSA's proposed penalty was based on an allegation that Enbridge's OQ plan "did not address any covered tasks that were performed on the hazardous liquid portions of the facilities." As discussed above, the record demonstrates that this allegation is incorrect. Further PHMSA alleged, "It was noted that the plan had not been revised since [Enbridge] acquired hazardous liquid facilities." The Associate Administrator agreed that this allegation was incorrect.

For the reasons discussed above, Enbridge asserts that its OQ plan for the hazardous liquid pipelines complied with PHMSA's regulatory requirements and that no violation of 49 C.F.R. § 195.505 occurred. As such, no penalty should be assessed. To the extent that the Associate Administrator were to find that the OQ plan addresses hazardous liquids, but possibly in an incomplete fashion, Enbridge asserts that the nature, circumstances and gravity of any violation is far less significant than that alleged in the Notice. As such, the proposed penalty should be reduced commensurately.

In addition, PHMSA alleged that Enbridge's list of tasks performed on natural gas facilities considered "not covered" "revealed a large number of tasks that should have been considered "covered tasks." As discussed above, and as recognized by the Associate Administrator, Enbridge "submitted for the record the list of non-covered tasks from its operator qualification program in effect at the time of the inspection to show that [Enbridge] had analyzed those tasks and concluded that each one did not meet the definition of a covered task." Further, the Final Order's allegation that Enbridge's OQ plan was insufficient at the time of the inspection is not supported by the record.

For the reasons discussed above, Enbridge asserts that its OQ plan for the natural gas pipelines complied with PHMSA's regulatory requirements and that no violation of 49 C.F.R. § 192.805 occurred. As such, no penalty should be assessed. To the extent that the Associate Administrator finds that a violation occurred, Enbridge asserts that the nature, circumstances and gravity of any violation is far less significant than that alleged in the Notice. As such, the proposed penalty should be reduced commensurately.

Culpability

PHMSA's alleged violations included in the Notice were both negated by Enbridge. At a minimum, Enbridge demonstrated that the violations were of a less serious nature than initially alleged by PHMSA. This fact affects the assessment of Enbridge's culpability for any violation that may have occurred.

PHMSA's initially alleged that Enbridge completely failed to have a qualifications program for its hazardous liquid pipelines. The record shows that this allegation was incorrect. Neither PHMSA's allegation regarding Enbridge's "non-covered" task list nor the Final Order's allegation that Enbridge's OQ plan was insufficient at the time of the inspection were supported by the record. As such, the assessment of Enbridge's culpability for any violation should therefore be significantly lower than that assessed in PHMSA's initial calculation of the proposed penalty. Any culpability on the part of Enbridge was not analyzed in the context of these facts. The Associate Administrator should reconsider the penalty to account for these facts and the penalty should be reduced.

Good Faith

PHMSA's initial proposed penalty apparently gave Enbridge no credit for good faith efforts to comply with the qualification program requirements. The Final Order apparently gave no credit for this factor either, given that the proposed penalty was assessed.

The Final Order failed to acknowledge or consider Enbridge's timely submission of a revised qualifications program to address PHMSA's "areas of concern." While maintaining its objections to PHMSA's allegations of violations, Enbridge submitted the revised program within two months of PHMSA's Notice. Such a response is exactly what PHMSA should hope for in its enforcement program. Enbridge's efforts in this regard were not considered for purposes of a reduction of the penalty.⁵ The Associate Administrator should reconsider the penalty to account for these facts and the penalty should be reduced.

Comparison to Similar Case

Enbridge has identified a similar case in which PHMSA issued a Final Order to address an alleged violation of 49 C.F.R. 195.505(a). *See In the Matter of Pipelines of Puerto Rico*, CPF No. 2-2005-6022. A copy of the Final Order in that case is attached hereto as Exhibit F. In that case, PHMSA conducted an inspection of Pipelines of Puerto Rico ("PPR") to review its OQ records and procedures on June 30-July 1, 2005.

As a result of the inspection, PHMSA alleged that PPR failed to have and follow a written OQ plan with a completed covered task list. PHMSA further alleged that PPR's covered task list was not completed until July 29, 2005 and the covered task list, when completed, failed to address specific covered tasks that were being performed on the pipeline system. In addition, PHMSA alleged two additional violations of 49 C.F.R. § 195.505(b), and violations of 49 C.F.R. § 195.505(b), (c), (d), (e), (g) and 195.509(a).

PPR failed to respond to PHMSA's Notice of Probable Violation. PPR did not contest the allegations, did not request a hearing, and did not take any action to address the issues raised in the Notice of Probable Violation.

⁵ Instead, Enbridge's submission was used as evidence in support of the newly alleged violation that Enbridge failed to have and follow a qualification program that identified each covered task performed on Enbridge's natural gas pipeline system.

PHMSA issued a Final Order on May 11, 2006. The Final Order found that the violations occurred; assessed a penalty of \$12,000; and required PPR to perform five corrective measures to address the violations. Of the total penalty, PHMSA assessed PPR a penalty of \$1,000 for its violations of 49 C.F.R. § 195.505(a).

An agency is required to provide an adequate explanation before treating similarly situated parties differently. Failure to do so is a violation of the Administrative Procedures Act. *Burlington Northern & Santa Fe Ry. Co. v. Surface Trans. Bd.*, 403 F.3d 771, 776-777 (D.C. Cir. 2005). "Where an agency applies different standards to similarly situated entities and fails to support this disparate treatment with a reasoned explanation and substantial evidence in the record, its action is arbitrary and capricious and cannot be upheld." *Willis Shaw Frozen Express, Inc. v. ICC*, 587 F.2d 1333, 1336 (D.C. Cir. 1978).

Based on the facts of the two cases, any penalty assessed against Enbridge should be less than that assessed against PPR. Enbridge had a comprehensive OQ plan in place far before the time of PHMSA's inspection. Further, Enbridge took immediate action to address PHMSA's "areas of concern." The Associate Administrator should reconsider the penalty to account for these facts and the penalty should be reduced.

Burden of Proof

In addition, PHMSA has the burden of proof with respect to the assessment of a penalty. *See* 5 U.S.C. § 556(d). The record includes no evidence supporting PHMSA's calculation of the penalty. As discussed above, the record includes evidence submitted by Enbridge that directly addresses the criteria to be considered by the Associate Administrator in calculating a penalty. *See* 49 U.S.C. § 60122; 49 C.F.R. § 190.225. The Final Order failed to consider any of the evidence submitted by Enbridge in this regard. In fact, the Final Order incorrectly stated that Enbridge had failed to "present any information specific to mitigating the proposed civil penalty...." Based on the evidence included in the record, PHMSA did not meet its burden of proof of establishing the appropriate penalty to be assessed by a preponderance of the evidence.

Summary

PHMSA had the burden of proof with respect to the assessment of a penalty. *See* 5 U.S.C. § 556(d). PHMSA failed to meet this burden. The record includes no evidence on how PHMSA calculated the penalty or considered the penalty criteria. Enbridge submitted evidence addressing PHMSA's penalty criteria. The Final Order failed to address any of the information submitted by Enbridge, and failed to make any adjustment in the proposed penalty as is supported by the record in this matter. In addition, Enbridge has identified a similar PHMSA matter in which an entity that allegedly committed similar, if not more serious violations, was assessed a far small penalty. Based on these facts, the Associate Administrator should reconsider the penalty to account for these facts and the penalty should be reduced.

Prayer

For these reasons, requests that the Associate Administrator grant this Petition for Reconsideration and stay the effectiveness of the Final Order to allow for further proceedings in this matter. *See* 49 C.F.R. § 190.215(a). Enbridge further requests that the Associate

Administrator find that Enbridge did not commit the violations alleged in this matter, as set forth in the Notice of Probable Violation. In the alternative, Enbridge requests that the Associate Administrator find that a penalty is not warranted in this matter or that the penalty be reduced from the amount assessed in the Final Order.

Respectfully submitted,

FULBRIGHT & JAWORSKI L.L.P.

Edward Lewis by PCS with permission

Edward Lewis

State Bar No. 00786058

Paul Sarahan

State Bar No. 17648200

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Attorneys for Respondent ENBRIDGE
ENERGY COMPANY, INC.

**DEPARTMENT OF TRANSPORTATION
PIPELINE AND HAZZARDOUS MATERIALS SAFETY ADMINISTRATION
OFFICE OF PIPELINE SAFETY
WASHINGTON, D.C. 20590**

In the Matter of)
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Enbridge Energy Company, Inc.,)

CPF No. 4-2005-8004

Respondent)
_____)

AFFIDAVIT OF DAVID MCQUADE

STATE OF TEXAS

§

COUNTY OF HARRIS

§

§

BEFORE ME, the undersigned Notary Public, on this day personally appeared David McQuade, who after being duly sworn, deposes and says:

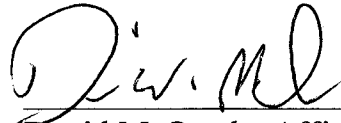
1. "My name is David McQuade. I have personal knowledge of the matters stated in this affidavit. I am over the age of 18 years and have not been convicted of a felony.

2. I am employed as the Environmental Health & Safety and Compliance Manager at Enbridge Energy Company, Inc. ("Enbridge"), located at 1100 Louisiana, Suite 300, Houston, Texas 77002.

3. Enbridge received service of the Final Order in this matter on August 29, 2007.

4. Enbridge has authorized Fulbright & Jaworski L.L.P. to represent Enbridge in this matter and to file a Petition for Reconsideration.

5. I have read this affidavit, and it is true, correct, and within my personal knowledge.”



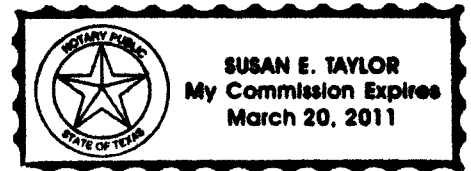
David McQuade, Affiant

STATE OF TEXAS

§
§
§

COUNTY OF HARRIS

SUBSCRIBED AND SWORN TO BEFORE ME on this the 14th day of September, 2007, by David McQuade.



Notary Public, State of Texas

Susan E. Taylor

Printed Name of Notary Public

My Commission Expires: March 20, 2011



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

8701 S. Gessner, Suite 1110
Houston, TX 77074

**NOTICE OF PROBABLE VIOLATION
PROPOSED CIVIL PENALTY
AND
PROPOSED COMPLIANCE ORDER**

CERTIFIED - RETURN RECEIPT REQUESTED

April 18, 2005

Mr. Rich Adams
Vice President of Operations & Technology
Enbridge Transportation Group South
Division of Enbridge Energy Company, Inc.
1100 Louisiana
Suite 3300
Houston, TX 77002

CPF No. 4-2005-8004

Dear Mr. Adams:

On November 17-18, 2004, a team of representatives of the Office of Pipeline Safety (OPS), pursuant to Chapter 601 of 49 United States Code, conducted an onsite pipeline safety inspection of your Operator Qualification (OQ) records and procedures at your headquarters in Houston, Texas.

As a result of the inspection, it appears that you have committed probable violations as noted below of pipeline safety regulations Title 49, Code of Federal Regulations, Parts 192 and 195. The items inspected and the probable violations are:

1. §192.805 & §195.505 Qualification program.

Each operator shall have and follow a written qualification program. The program shall have provisions to:

(a) Identify covered tasks;

- A. Enbridge Transportation Group South's (Enbridge TGS) written OQ plan did not address any covered tasks that were performed on the hazardous liquid portions of their facilities. It was noted that the plan had not been revised since Enbridge TGS acquired hazardous liquid facilities.
- B. Our inspectors' review of the list of tasks (performed on natural gas facilities) considered "not covered" by Enbridge TGS, revealed a large number of tasks that should have been considered "covered tasks".

2. §192.805 and §195.505 Qualification program.

Each operator shall have and follow a written qualification program. The program shall have provisions to:

(b) Ensure through evaluation that individuals performing covered tasks are qualified;

Enbridge TGS could not provide documentation that persons performing "typical" covered tasks were qualified to perform the tasks. As addressed in Item #1, the written qualification program did not address certain covered tasks, but individuals have continued to operate the pipeline facilities.

Under 49 United States Code, §60122, you are subject to a civil penalty not to exceed \$100,000 for each violation for each day the violation persists up to a maximum of \$1,000,000 for any related series of violations. The Compliance Officer has reviewed the circumstances and supporting documentation involved in the above probable violation and recommends that you be preliminarily assessed a civil penalty of \$100,000, for Item 1.

We have reviewed the circumstances with Item 2 and the supporting documents involved, and have decided not to assess you a civil penalty. We advise you, however, that should you not correct the circumstances leading to the violation, we will take enforcement action when and if the continued violation comes to our attention.

Additionally, pursuant to 49 United States Code § 60118, the Office of Pipeline Safety proposes to issue you a compliance order. That proposed compliance order is attached to and made part of this Notice of Probable Violation.

Also, attached to this Notice of Probable Violation is a description of the courses of action available to you in responding to this Notice. Please note that regardless of the course of action you elect to follow, you must respond within 30 days of your receipt of this Notice. Your failure to respond within 30 days will result in referral to the Associate Administrator, Office of Pipeline Safety, to find the facts to be as alleged herein and order a civil penalty.

In addition, as a result of the inspection and in keeping with pipeline safety regulations, Title 49, Code of Federal Regulations, Part 192 and Part 195, we have noted some

areas of concern:

1. At the time of the inspection, training was addressed only in on-the-job training of employees who fail an evaluation. As the December 17, 2004, deadline has passed with regard to the Pipeline Safety Improvement Act of 2002, the requirement for operators to address training, where appropriate, is in effect.
2. Although many third party qualifying organizations are listed as being acceptable to the operator, it was obvious that a thorough review of those qualification/evaluation methods was not done to ensure compatibility with the operators' OQ Plan qualification requirements. There were a number of high consequence, highly complex covered tasks (requiring an assessment of ability according to the operator's plan) were only requiring a knowledge test when qualifying was done by third parties. "Exhibit D"
3. There were covered tasks that should be reviewed to determine if a shorter re-evaluation interval should be implemented. Done
4. At the time of the inspection, there were programming issues with the OQ Manager (database). Incorrect qualification expiration dates were being calculated, which in turn, affected re-evaluation intervals.
5. Enbridge South has titled some covered tasks so the intent of the covered tasks is not fully understood. Inspection, testing, operation and maintenance functions, where appropriate, should be clearly indicated.

Please refer to CPF No. 4-2005-8004 in any correspondence on these matters.

Sincerely,



R. M. Seeley
Director, Southwest Region

Enclosure

PROPOSED COMPLIANCE ORDER

Pursuant to 49 United States Code § 60118, the Office of Pipeline Safety proposes to issue to Enbridge Transportation Group South a compliance order incorporating the following requirements to assure compliance with the pipeline safety regulations applicable to its operations.

In regard to the Notice pertaining to your operator qualification program:

1. Provide documentation of the amended covered task list, with both natural gas and hazardous liquid covered tasks being addressed, including re-evaluation intervals and the accepted method of qualification. This correspondence shall be submitted within 60 days following your receipt of the Final Order.
2. Provide correspondence that indicates individuals performing the newly designated covered tasks have been qualified within the parameters established. This correspondence shall be submitted within 120 days following your receipt of the Final Order.

When the appropriate records have been completed in regard to the above items in this Compliance Order, submit correspondence that states records of subsequent qualifications are complete to the Director, Southwest Region, Office of Pipeline Safety, 8701 South Gessner, Suite 1110, Houston, TX 77074. These records will be subject to future inspections.

I. Procedures for Responding to a Notice of Probable Violation:

The requirements of 49 C.F.R. Part 190, Subpart B govern your response to this Notice of Probable Violation ("Notice").

Within 30 days of receipt of a Notice, the respondent shall respond to the Regional Director who issued the Notice in the following way:

(a) When the Notice contains a proposed **civil penalty*** --

- (1) Pay the proposed civil penalty, authorizing OPS to make findings and to close the case with prejudice to the respondent. Payment terms are outlined in Attachment A;
- (2) Submit written explanations, information, or other materials regarding the merits of the allegations and seek elimination or mitigation of the proposed civil penalty; or
- (3) Request a hearing as described below to contest the allegations and proposed assessment of a civil penalty.

* Failure of the respondent to respond within 30 days of receipt of a Notice containing a civil penalty constitutes a waiver of the right to contest the allegations in the Notice and authorizes the Associate Administrator for Pipeline Safety to find facts as alleged in the Notice without further notice to the respondent and to issue a Final Order.

(b) When the Notice contains a proposed **compliance order** --

- (1) Notify the Regional Director that you intend to take the steps in the proposed compliance order;
- (2) Submit written explanations, information, or other materials in answer to the allegations in the Notice and object to or seek clarification of the proposed compliance order items in whole or in part;
- (3) Request a hearing as described below to contest the allegations in the Notice; or
- (4) Request consideration of a consent order as described below pursuant to 49 C.F.R. § 190.219.

(c) When the Notice contains an **amendment** of plans or procedures --

- (1) Notify the Regional Director that you intend to take the steps in the proposed amendment of plans or procedures;

(2) Submit written explanations, information, or other materials in answer to the allegations in the Notice and object to or seek clarification of the proposed amendment items in whole or in part; or

(3) Request a hearing as described below to contest the allegations in the Notice.

(d) When the Notice contains warning items -- These items may be addressed at the operator's discretion; however, no response is required.

II. Procedure for Requesting a Hearing

A request for a hearing must be in writing and accompanied by a statement of the issues which the respondent intends to raise at the hearing. The issues may relate to the alleged violations, new information, or to the proposed compliance order or proposed civil penalty amount. A respondent's failure to specify an issue may result in waiver of the right to raise that issue at the hearing. The respondent's request must also indicate whether or not respondent will be represented by counsel at the hearing. Failure to submit a request for a hearing in writing waives the right to a hearing. In addition, if the amount of the proposed civil penalty or the proposed corrective action is less than \$10,000, the hearing will be held by telephone, unless the respondent submits a written request for an in-person hearing. Complete hearing procedures can be found at 49 C.F.R. § 190.211.

III. Extensions of Time

An extension of time to prepare an appropriate response to a Notice may be granted, at the agency's discretion, following submittal of a written request to the Region Director. The request must indicate the amount of time needed and the reasons for the extension. The request must be submitted within 30 days of receipt of the Notice.

IV. Freedom of Information Act

Any material prepared by OPS, including the violation report, this Notice, and any order issued in this case, and/or any material provided to OPS, may be considered public information and subject to disclosure under the Freedom of Information Act (FOIA). If the information you provide is security sensitive, privileged, confidential or may cause your company competitive disadvantages, please clearly identify the material and provide justification why the documents, or portions of a document, should not be released under FOIA. If we receive a request for your material, we will notify you if OPS, after review of the materials and your provided justification, determines that withholding the materials does not meet any exemption provided under the FOIA. You may appeal the agency's decision to release materials under the FOIA at that time. Your appeal will stay the release of those materials until a final decision is made.

V. Small Business Regulatory Enforcement Fairness Act Information

The Small Business and Agricultural Regulatory Enforcement Ombudsman and 10 Regional Fairness Boards were established to receive comments from small businesses about federal agency enforcement actions. The Ombudsman will annually evaluate the enforcement activities and rate each agency's responsiveness to small business. If you wish to comment on the enforcement actions of the Pipeline and Hazardous Materials Safety Administration, call 1-888-REG-FAIR (1-888-734-3247).

ATTACHMENT A -- PAYMENT INSTRUCTIONS

Civil Penalty Payments of Less Than \$10,000

Payment of a civil penalty of less than \$10,000 proposed or assessed, under Subpart B of Part 190 of the Pipeline Safety Regulations can be made by certified check, money order or wire transfer. Payment by certified check or money order should be made payable to the "Department of Transportation" and should be sent to:

General Ledger Branch (AMZ-300)
Federal Aviation Administration
U.S. Department of Transportation
Mike Monroney Aeronautical Center
P.O. Box 25082
Oklahoma City, OK 73125-4915

Wire transfer payments of less than \$10,000 may be made through the Federal Reserve Communications System (Fedwire) to the account of the U.S. Treasury. Detailed instructions are provided below. Questions concerning wire transfer should be directed to the General Ledger Branch at (405) 954-4719, or at the above address.

Civil Penalty Payments of \$10,000 or more

Payment of a civil penalty of \$10,000 or more proposed or assessed under Subpart B of Part 190 of the Pipeline Safety Regulations must be made wire transfer (49 C.F.R. § 89.21 (b)(3)) through the Federal Reserve Communications System (Fedwire) to the account of the U.S. Treasury. Detailed instructions are provided below. Questions concerning wire transfers should be directed to the General Ledger Branch at (405) 954-4719, or at the above address.

1. <u>RECEIVER'S ABA NO.</u> 021030004	2. <u>TYPE SUBTYPE</u> (provided by sending bank)
3. <u>SENDING BANK ARB NO.</u> (provided by sending bank)	4. <u>SENDING BANK REF NO.</u> (provided by sending bank)
5. <u>AMOUNT</u>	6. <u>SENDING BANK NAME</u> (provided by sending bank)
7. <u>RECEIVER NAME:</u> TREAS NYC	8. <u>PRODUCT CODE</u> (Normally CTR, or as provided by sending bank)

9. <u>BENEFICIAL (BNF)- AGENCY LOCATION CODE-/ AC 69-00-1105</u>	
10. <u>REASONS FOR PAYMENT</u> OBI = Payment for Civil Penalty/PHMSA CPF #	

INSTRUCTIONS: You, as sender of the wire transfer, must provide the sending bank with the information for Block (1), (5), (7), (9), and (10). The information provided in blocks (1), (7), and (9) are constant and remain the same for all wire transfers to Pipeline and Hazardous Materials Administration, Department of Transportation.

Block #1 - RECEIVER ABA NO. - "021030004". Ensure the sending bank enters this nine digit identification number, it represents the routing symbol for the U.S. Treasury at the Federal Reserve Bank in New York.

Block #5 - AMOUNT - You as the sender provide the amount of the transfer. Please be sure the transfer amount is punctuated with commas and a decimal point. **EXAMPLE; \$10,000.00**

Block #7 - RECEIVER NAME- "TREAS NYC." Ensure the sending bank enters this abbreviation, it must be used for all wire transfer to the Treasury Department.

Block #9 - BENEFICIAL - AGENCY LOCATION CODE - "BNF=/AC-69001105" Ensures the sending bank enters this information. This is the Agency Location Code for Pipeline and Hazardous Materials Administration, Department of Transportation.

Block #10 - REASON FOR PAYMENT - "OBI = Payment for Civil Penalty/PHMSA CPF number and your company's name. Example: OBI = Payment for Civil Penalty/PHMSA CPF #1-2002-5001/ ABC Pipeline Co.

Note: - A wire transfer must comply with the format and instructions or the Department cannot accept the wire transfer. You, as the sender, can assist this process by notifying, at the time you send the wire transfer to the General Accounting Division (405) 954-4719.

May 18, 2005

Mr. Rodrick M. Seeley
Director, Southwest Region
Office of Pipeline Safety
8701 South Gessner, Suite 1110
Houston, TX 77074

RE: CPF No. 4-2005-8004

Dear Mr. Seeley,

Subsequent to a pipeline safety inspection of Enbridge Transportation South (Enbridge) Operator Qualification (OQ) records and procedures conducted on November 17-18, 2004, Enbridge has received your Notice of Probable Violation (NOPV), Proposed Civil Penalty, and Proposed Compliance Order dated April 18, 2005. Enbridge appreciates the opportunity to respond to this evaluation and trusts that this input may assist in resolving any outstanding issues. It is respectfully requested that the proposed civil penalty and proposed compliance order be reduced or eliminated, as appropriate, based on a consideration of the information provided in this letter.

Enbridge is dedicated to operator excellence and has a strong commitment to ensuring the safety of the public and the protection of the environment. In response to the specific items noted in the NOPV the following is offered:

Item No. 1

1. \$192.805 & \$195.505 Qualification program.

Each operator shall have and follow a written qualification program. The program shall have provisions to:

(a) Identify covered tasks;

A. Enbridge Transportation Group South's (Enbridge TGS) written OQ plan did not address any covered tasks that were performed on the hazardous liquid portions of their facilities. It was noted that the plan had not been revised since Enbridge TGS acquired hazardous liquid facilities.

Response:

The Enbridge OQ plan contains multiple references to 49 CFR 195, Enbridge hazardous liquids facilities, and associated covered tasks. Enclosed for your review (Attachment 1) is a list of the areas in the OQ plan and supplemental documents where liquids systems are addressed. The Enbridge OQ plan lists liquid specific knowledge requirements and additional covered tasks specific to liquids systems.

All of the Enbridge Transportation South hazardous liquids facilities were acquired prior to 2002. Although the original Enbridge OQ plan is dated April 27, 2001 there have been numerous revisions to the OQ plan, the most recent being in November 2004. Enclosed for your review (Attachment 2) is the Enbridge OQ plan revision log.

B. Our inspectors' review of the list of tasks (performed on natural gas facilities) considered "not covered" by Enbridge TGS, revealed a large number of tasks that should have been considered "covered tasks".

Response:

To identify a covered task Enbridge uses the four part covered task test referenced in 49 CFR §192.801(b). Enclosed for your review (Attachment 3) is Part Two: Non-covered Tasks of the "Enbridge Covered Task List Justification: Natural Gas Transmission & Gathering & Hazardous Liquid Pipelines". The activities/tasks identified in this list are individually addressed with respect to the four part covered task test. The development of this list was a combined effort on the part of Safety & Compliance Evaluation, Inc. (SCE), Enbridge Technology, Inc. (ETI), and Enbridge Transportation South. Every attempt was made to ensure that the covered task list was in accordance with both the specific language and the intent of the operator qualification regulations. Without further specific examples, it is the contention of Enbridge that the activities in the "non-covered" task list and the "covered" task list are appropriate and meet regulatory requirements.

Item No. 2

2. §192.805 and §195.505 Qualification program.

Each operator shall have and follow a written qualification program. The program shall have provisions to:

(b) Ensure through evaluation that individuals performing covered tasks are qualified;

Enbridge TGS could not provide documentation that persons performing "typical" covered tasks were qualified to perform the tasks. As addressed in Item #1, the written qualification program did not address certain covered tasks, but individuals have continued to operate the pipeline facilities.

Response:

Enbridge maintains an operator qualification database that tracks the performance and qualification records of the employees. Additionally, paper copies of the employee knowledge and qualification tests of the covered tasks are kept on file. An example of each record is enclosed for your review (Attachment 4).

As noted in the response to Item 1.B. above, it is the contention of Enbridge that the covered task list (Attachment 3) is in compliance with the OQ regulations. The activities/tasks identified in this list are individually addressed with respect to the four part covered task test. The development of this list was a combined effort on the part of Safety & Compliance Evaluation, Inc. (SCE), Enbridge Technology, Inc. (ETI), and Enbridge Transportation South. Every attempt was made to ensure that the covered task list was in accordance with both the specific language and the intent of the operator qualification regulations. Without further specific examples, it is the contention of Enbridge that the activities in the "non-covered" task list and the "covered" task list are appropriate and meet regulatory requirements.

Noted Areas of Concern:

1. **At the time of the inspection, training was addressed only in on-the-job training of employees who fail an evaluation. As the December 17, 2004, deadline has passed with regard to the Pipeline Safety Improvement Act of 2002, the requirement for operators to address training, where appropriate, is in effect.**
2. **Although many third party qualifying organizations are listed as being acceptable to the operator, it was obvious that a thorough review of those qualification/evaluation methods was not done to ensure compatibility with the operators' OQ Plan qualification requirements. There were a number of high consequence, highly complex covered tasks (requiring an assessment of ability according to the operator's plan) were only requiring a knowledge test when qualifying was done by third parties.**
3. **There were covered tasks that should be reviewed to determine if a shorter re-evaluation interval should be implemented.**
4. **At the time of the inspection, there were programming issues with the OQ Manager (database). Incorrect qualification expiration dates were being calculated, which in turn, affected re-evaluation intervals.**
5. **Enbridge South has titled some covered tasks so the intent of the covered tasks is not fully understood. Inspection, testing, operation and maintenance functions, where appropriate, should be clearly indicated.**

Response to areas of concern:

Enbridge Transportation South has recently contracted RCP, Inc. to assist with a revision, modification, and distribution of the Enbridge OQ Plan. The revisions will address the items noted under "areas of concern" – training, evaluation methodology, re-evaluation intervals, documentation, and task scope. It is anticipated that a revised OQ Plan will be completed by June 15, 2005. Enbridge has also committed to purchase and implement the eWebOQ web-based training delivery and curriculum management system. This system will provide specific task training, re-evaluation intervals, and documentation in compliance with the regulatory requirements.

It is respectfully requested that the responses noted above be reviewed and the civil penalty and proposed compliance order be reduced or eliminated. Enbridge also wishes to reserve our right to a hearing if an agreement cannot be met on the reduction of the proposed actions.

We are hopeful, however, that a hearing can be avoided upon the OPS evaluation of the documentation and responses provided that supports the Enbridge position on the alleged violations. Enbridge continually seeks to further develop and maintain strong, quality partnerships with the Office of Pipeline Safety in assuring full compliance with all regulations through open and ongoing communications. Enbridge is dedicated to operator excellence and is strongly committed to operating a safe and reliable pipeline system while protecting the public, our employees, and the environment.

If you have any questions, please do not hesitate to contact me. Thank you once again for the opportunity to respond to the noted issues.

Sincerely,



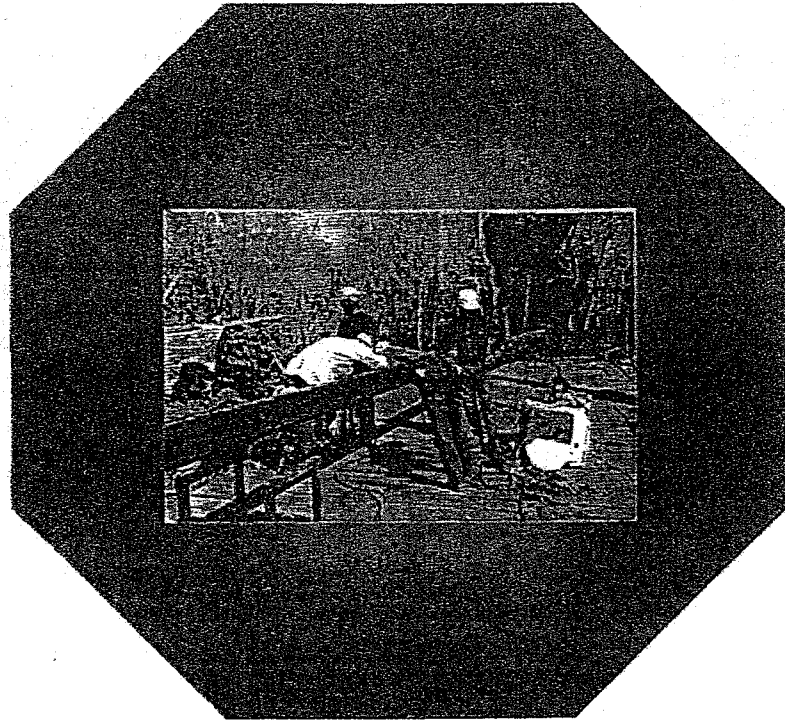
Scott R. Peterson
Manager, Compliance & Systems Integrity

Enclosures (4)

cc: Garry Worone (w/out enclosures)
Mike Koby (w/out enclosures)
Rich Adams (w/out enclosures)



Transportation Group South Operator Qualification Plan



Natural Gas & Liquid Pipeline Systems
(and Crude Oil Pipeline Systems)

Enbridge (U.S.), Inc.
Transportation South

Natural Gas & Liquid Pipeline Systems
(and Crude Oil Pipeline Systems)
Operator Qualification Plan

Effective Date
April 27, 2001

Table of Contents

TABLE OF CONTENTS	1
PART ONE: PURPOSE AND SCOPE	2
PART TWO: EMPLOYEE RESPONSIBILITIES	3
PART THREE: IDENTIFICATION OF COVERED TASKS	5
PART FOUR: EVALUATION METHODS	6
PART FIVE: IDENTIFICATION OF PERSONS PERFORMING COVERED TASKS	7
PART SIX: RE-EVALUATION OF A PERSON'S QUALIFICATIONS	7
PART SEVEN: QUALIFICATION OF CONTRACTOR EMPLOYEES TO PERFORM COVERED TASKS	9
PART EIGHT: INCORPORATION BY REFERENCE OF OPERATOR QUALIFICATION PLANS OF COMPANIES WITH WHICH ENBRIDGE TS HAS MUTUAL ASSISTANCE PLANS.	10
FORM OQ-4 - WORK PERFORMANCE HISTORY REVIEW	11
ATTACHMENT A: EVALUATION METHODS INCORPORATED BY REFERENCE	13
ATTACHMENT B: INCORPORATION BY REFERENCE OF QUALIFICATION REQUIREMENTS OF COMPANIES FOR PERFORMING CERTAIN COVERED TASKS IN EMERGENCIES	14

Part One: Purpose and Scope

1.1 Scope

This Operator Qualification Plan (OQ Plan) prescribes requirements for evaluating the qualifications of all persons performing "covered" operating and maintenance tasks on Enbridge TS natural gas pipeline system. In limited cases within the Enbridge TS companies, liquid lines and liquid crude lines are present and are also subject to the requirements of this OQ Plan. This Plan is adopted to comply with minimum pipeline safety regulations at 49 CFR Part 192, Subpart N. In addition, for specific pipeline operations that include liquid lines, 49 CFR Part 195, Subpart G, apply.

After October 28, 2002 no company employee, employee of a contractor or any other person may perform any "covered" task unless the requirements of this Plan have been satisfied. It is our responsibility to 1) ensure that all our employees and employees of our contractors are qualified in accordance with this Plan and 2) to maintain adequate records to document these qualifications.

In addition to qualifications for covered tasks, this Plan may include qualification, training and/or testing that is not required or regulated under 49 CFR 192 Subpart N or 195 Subpart G. These qualification requirements are included here for the convenience of Enbridge TS in order to consolidate all qualification requirements into one plan. **Pursuant to determinations made during the rulemaking process, these non-regulated training and evaluation procedures, voluntarily added to this Plan by Enbridge TS, are NOT subject to review or enforcement by federal or state regulators under 49 CFR 192 Subpart N and 195 Subpart G.**

1.2 Purpose

The purpose of this plan is to ensure safe and efficient natural gas service and liquid crude transport by:

- Establishing objective criteria of required qualifications for all persons performing safety-sensitive operations and maintenance tasks on Enbridge TS gas and liquid crude piping system,
- Ensuring through evaluation that each person performing safety sensitive tasks on Enbridge TS pipeline system is able to perform these tasks and recognize and respond appropriately to abnormal operating conditions they may encounter, and
- Maintaining necessary records to administer this plan.

1.3 Definitions

Unless another meaning is specifically indicated, when used in this plan:

1. *Abnormal operating condition* (AOC) means a condition identified by Enbridge TS that may indicate a malfunction of a component or deviation from normal operations that may result in a condition exceeding design limits or hazard(s) to persons, property, or the environment. AOC's associated with specific covered tasks are listed in the covered task list and Enbridge Covered Task justification.
2. *Covered task* means any task that:

- Is performed on a pipeline facility;
 - Is an operations or maintenance task;
 - Is performed as a requirement of 49 CFR Part 192 or 195; and
 - Could affect the operation or integrity of the pipeline.
3. *Evaluation* means a process, established and documented by Enbridge TS, to determine an individual's ability to perform a covered task by any of the following: written examination; oral examination; work performance history review; observation during (a) performance on the job, (b) on the job training, (c) simulations; or other forms of assessment.
 4. *Operator* means Enbridge Transportation Group South.
 5. *Person* means any individual, firm, joint venture, partnership, corporation, association, State, municipality, cooperative association, or joint stock association, and including any trustee, receiver, assignee, or personal representative thereof.
 6. *Pipe* means any pipe or tubing used in the transportation of gas or crude, including pipe-type holders.
 7. *Pipeline* means all parts of those physical facilities through which gas or crude moves in transportation, including pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, pump stations and fabricated assemblies.
 8. *Pipeline facility* means new and existing pipelines, rights-of-way, and any equipment, facility, or building used in the transportation of gas or crude or in the treatment of gas or crude during the course of transportation.
 9. *Qualified* means that an individual has been evaluated and can (a) perform assigned covered tasks and (b) recognize and react to abnormal operating conditions.

Part Two: Employee Responsibilities

2.1 Plan Administration

The Health, Safety & Environmental Director is designated Plan Administrator and is responsible for the administration of this plan:

Plan administration includes: maintenance of the complete OQ Plan, including material incorporated by reference; distribution of up-to-date copies of the Plan to appropriate personnel; making the Plan available for inspection by authorized agents of regulatory agencies; ensuring that all milestones, periodic program evaluation intervals, etc. are conducted as specified in this Plan; notifying all company employees at least [90] days in advance of the date that an employee's current qualification will expire; scheduling evaluations; recording the results of evaluations; maintaining a current list of qualified employees; monitoring federal and state regulations that affect this Plan; and such other activities as are necessary to carry out the scope and purpose of this Plan.

2.2 General Employee Responsibilities

All employees are expected to be aware that covered tasks may only be performed by persons qualified under this Plan. Any employee observing any of these covered tasks being performed on Enbridge TS pipeline facilities by a non-qualified person must immediately report this condition to the Plan Administrator, in addition to any specific responsibilities listed below.

EXCEPTION:

A non-qualified person(s) may perform a covered task if that person(s) is directed and observed by an individual that is qualified under this plan to perform that covered task. For the purpose of this Plan, directed and observed means that the qualified person is at the site where the covered task is being performed by the person(s) not qualified for this task and is closely watching each step of the work to ensure it is performed correctly. It is not sufficient that the qualified person be in the general vicinity, but not observing each step of the task. One qualified person may direct and observe more than one non-qualified person at one time performing one or more covered tasks, however the number of non-qualified persons watched by one qualified persons should be kept to a minimum consistent with the ability of the qualified person to observe and direct the performance of the covered task(s).

2.3 Specific Responsibilities

- 2.3.1 The [Contract Manager] is responsible to ensure that all contracts for the performance of operations and maintenance tasks on company facilities incorporate identified covered tasks and stipulate that no contractor employee may perform any of these tasks unless the contractor has first provided the company with evidence that these employees are qualified in accordance with the requirements of this Plan. See Part Seven of this Plan for more details on contractor qualification.
- 2.3.2 [Construction Inspectors] are responsible to ensure that on all the job sites for which they are responsible that Enbridge TS and contractor personnel are aware of identified covered tasks for which qualification is required and that non-qualified persons may not perform these tasks unless directed and observed by a qualified person. Work must be immediately stopped on any job where it is discovered that non-qualified workers are performing covered tasks unless that person is directed and observed by a person who is qualified for that task. Routine inspection procedures should include review the qualifications of personnel. Documentation of operator qualification should be maintained by the construction inspector in the job or contractor files.
- 2.3.3 [Supervisors] are responsible to ensure that their subordinates are aware of the identified covered tasks and that they are not to perform these tasks unless they possess current qualifications from the company to perform these tasks or are directed and observed by a qualified person. Operations Team Leaders should maintain an up-to-date list of the qualifications of their Team Members. Team Leaders are to immediately update the qualification records when they have reason to believe that any of their Team Members are no longer qualified. Reasons to believe a person is no longer qualified may include observations of errors made by that employee while performing a task or other reasons.
- 2.3.4 The Plan Administrator is responsible for monitoring pipeline safety regulations and notifies the Team Leaders when regulatory changes require modifications to this plan or communication of changes to persons performing covered tasks affected by the change. The plan administrator will also coordinate periodic contractor reviews along with a periodic program review. The results of this internal program review/audit will be maintained by the plan administrator.

Part Three: Identification of Covered Tasks

3.1 Responsibility

The Plan Administrator is responsible for establishing and maintaining an up-to-date listing of covered tasks and must approve modifications or additions to the covered task list. The rationale for any changes to the covered task list shall be recorded and maintained by the Technical Services Team - HSE.

3.2 Identifying covered tasks

Covered tasks are those tasks that:

- Are performed on a pipeline facility;
- Are an operations or maintenance task;

- Are performed as a requirement of 49 CFR Part 192, 195; and
- Could affect the operation or integrity of the pipeline.

Tasks must be evaluated against the four-part test in this Plan. The Plan Administrator shall apply the four-part test to determine whether any new activities are or are not covered tasks when performed on Enbridge TS facilities.

3.3 Records

The rationale for the determination whether any task is covered or not covered is recorded in the Technical Services Team Files - HSE, maintained by the Plan Administrator.

Part Four: Evaluation methods

4.1 Responsibility

Selection of evaluation methods and the re-evaluation interval for each covered task is the responsibility of Plan Administrator. Selection of covered tasks along with evaluation methods justification is documented in the Enbridge Covered Task List justification. Due to the size of this document it will be maintained as a separate document.

4.2 Specified evaluation methods

The required evaluation(s) for each covered task are recorded in the Enbridge Covered Task List justification document and maintained by the Plan Administrator. These evaluation methods were analyzed on a task-by-task basis.

4.3 Re-evaluation intervals

In the absence of substantive data on the impact of different reevaluation intervals on operator performance, performance monitoring is needed to verify whatever intervals are selected. Such monitoring could be used to selectively lengthen the reevaluation intervals beyond the 3-year interval currently in place should the data support such a decision. In addition, it has been commented that tracking performance of every task by every qualified individual is burdensome and not practical. While such tracking may be difficult, several provisions of the rule require that, at a minimum, the operator must be able to identify persons who perform covered tasks that may have contributed to an incident or accident. This requirement is met through the investigation of covered incident and through a periodic review of all qualified individuals. An example of this review can be found in the appendix.

Re-evaluation intervals for evaluations have been designated as 3-years for all evaluations.

4.4 Work Performance History Review

Work performance history review may be used to evaluate the qualifications of persons who have regularly performed one or more covered tasks prior to August 27, 1999. Form OQ 4 shall be completed for each task and person for which work performance history

review is to be used as the transitional evaluation method. Work performance history review will not be used as the sole evaluation method after October 28, 2002. After October 28, 2002 work performance history will no longer be accepted by Enbridge as a form of operator qualification.

Part Five: Identification of persons performing covered tasks

5.1 Responsibility

The Team Leader is responsible for identifying those employees who perform covered tasks during the course of their work on Enbridge TS system and shall schedule each employee for evaluation of his/her qualifications to perform each covered task. Evaluation shall be done using one of the evaluation methods identified in Part Four of this Plan. The Team Leader shall maintain a list of persons and the covered tasks they are qualified to perform.

5.2 Recordkeeping

The Team Leader shall maintain an up-to-date list of qualified employees at each Field Location Filing Office.

The Operations Team Leaders maintain the following minimum records

- Identification of qualified individual(s)
- Identification of the covered task(s) each individual is qualified to perform;
- Date(s) of current qualification; and
- Qualification method(s).

The Operations Team Leaders, with oversight from the Plan Administrator, shall also maintain records of all actions performed as requirements of this OQ Plan:

- Processes for identification of covered tasks,
- Evaluation records
- Investigations of incidents
- Re-evaluation on reasonable suspicion
- Communication of changes

5.3 Record Retention

All records required by this plan must be retained for 5 years after the record is no longer required to document the qualification of any person to perform a covered task. An evaluation record may be discarded five years after:

- A person ceases to perform a covered task on Enbridge TS system, or
- A person has successfully retaken the evaluation

Part Six: Re-evaluation of a person's qualifications

6.1 Responsibility

The Team Leader is responsible for tracking the expiration dates of the qualifications for each company employee and notifying the employee before any required evaluation will

expire. The Team Leader is responsible for scheduling re-evaluation activities prior to the expiration date of qualifications for each employee.

6.1.1 Re-evaluation upon reason to believe that the individual is no longer qualified

Each employee is responsible for notifying the Team Leader and/or the Plan Administrator whenever he/she has reason to believe that any person working on the Enbridge TS system is no longer qualified to perform a covered task. Reasons may include, but are not limited to, observation that an employee or employee of a contractor is improperly performing a task, observable loss of motor skills or other reasons that indicate a person may no longer be able to perform a task. The Team Leader shall investigate and require re-evaluation in the covered task. The results of the investigation shall be recorded and forwarded to the Technical Services Team - HSE.

6.1.2 Re-evaluation of persons implicated in a reportable incident

Investigation of reportable incidents as defined in Part 191 and 195 shall include assessment of whether any person's performance of a covered task may have caused or contributed to the severity of the incident (as defined in 191.3 & 195.50). If the Team Leader and/or Plan Administrator determines that an Enbridge TS employee's or contractor employee's performance of a covered task contributed to a reportable incident, qualifications related to the incident shall be re-evaluated. Qualifications in other covered tasks unrelated to the incident need not be re-evaluated. The results of the investigation shall be recorded in Technical Service Team - HSE and Team Leader Files.

6.1.3 Communication of changes in procedures, equipment, regulations, etc.

The Plan Administrator (Technical Services Team - HSE) shall monitor changes in regulations, procedures, technology, new equipment, etc. that may affect the performance of a covered task and shall determine if these changes are so substantial as to require re-evaluation of the qualifications of each person qualified to perform each covered task affected by the change. The Plan Administrator shall determine whether the evaluation method(s) must be changed as a result of the changes. Evaluation methods should be modified if the new equipment, technology or procedure requires different knowledge, skills and abilities than those measured by the current evaluation method(s). The results of this process shall be recorded in Technical Services Team HSE Files.

6.2 *Re-evaluation*

As soon as possible after determining that re-evaluation is necessary under section 6.1 of this Plan, the Team Leader shall schedule a re-evaluation of qualifications. Until such re-evaluation is successfully completed, the affected person shall be considered non-qualified for any task that requires successful completion of the evaluation(s) in question and may not perform the covered task unless directed and observed by a person who is qualified to perform the covered task. The person may, however, continue to be qualified for other covered tasks that do not require the evaluation(s) in question.

Part Seven: Qualification of contractor employees to perform covered tasks

7.1 Responsibility

Enbridge TS is responsible for assuring that contractor employees and employees of their subcontractors are qualified if they are to perform covered tasks on Enbridge TS piping system. The Team Leaders, Plan Administrator, and Technical Service Team Members are responsible for transmitting with the request for proposals and other contract specifications Enbridge TS qualification requirements. After awarding the project but before commencing work the Enbridge project manager should gather all contractor qualification documentation. This information should be reviewed for compliance with Enbridge guidelines and maintained in the project/contractor file for review.

7.2 Evaluation of contractor employees

Contractors and other non-Enbridge TS employees who perform covered tasks on Enbridge TS facilities must be qualified if they perform any of the covered tasks. Qualification may be accomplished by any one of the following:

The Enbridge TS may evaluate the contractor employees using the evaluations required of Enbridge TS employees performing the same task(s), or

Contractors and other non-Enbridge TS employees who perform covered tasks on Enbridge TS facilities may provide evidence that all personnel have completed the appropriate evaluations for the covered tasks they will perform (example: Appendix A). Enbridge TS has reviewed and adopted the evaluation methods used by contractors listed in Attachment A as approved methods for qualifying contractors or as an accepted equivalent alternative method, or

Enbridge TS has reviewed and adopted certain 3rd party certification/qualification programs as accepted evaluation methods for certain covered tasks. These qualification criteria are listed in Attachment A. Contractor personnel possessing current qualifications from these 3rd parties will be accepted by Enbridge TS as evidence of qualification.

7.3 Notification of substandard performance of a covered task by a contractor

The appropriate Team Leader should be notified immediately if any Enbridge TS employee has reason to suspect that a contractor employee is not qualified to perform a covered task. Such reason could include, but is not limited to, observation of significant failure to follow procedures. In cases where a 3rd party has qualified the contractor employee, the Team Leader should be notified to inform the 3rd party qualification agency.

Part Eight: Incorporation by reference of operator qualification plans of companies with which Enbridge TS has mutual assistance plans.

In the event of major natural disasters or other emergencies, Enbridge TS may utilize employees of other gas transport companies to restore natural gas service to Enbridge TS customers. These individuals may be required to perform certain covered tasks on Enbridge TS facilities. In order to allow this mutual assistance to occur without violating 49 CFR 192 Subpart N or 195 Subpart G, Enbridge TS has incorporated by reference in Attachment B to this Plan the qualification requirements of companies whose employees Enbridge TS might utilize for certain covered tasks.

8.1 Responsibility

The Team Leader is responsible to identify covered tasks of this Plan that Enbridge TS might utilize borrowed employees to perform under mutual assistance arrangements. The Team Leader shall also identify companies with whom Enbridge TS would be likely to rely upon for emergency assistance and request a copy of the qualification requirements these companies have established for these covered tasks. These qualification requirements, found in Attachment B of this Plan have been evaluated and are incorporated by reference into this Plan as acceptable alternative methods of qualification for the covered tasks.

In the event Enbridge TS is offered and accepts assistance from a company not listed in Attachment B, the Team Leader shall obtain and incorporate the qualification requirements of that company into Attachment B as soon as possible.

Last Name:		
Task:		

Form OQ-4 - Work Performance History Review

This form is to be used to qualify persons to perform covered task by use of a work performance history review.

NOTE: This may be used for qualification only under the following conditions:
 The person being qualified has regularly performed this covered task prior to August 27, 1999.
 Today's date is on or before October 28, 2002.

Results of records review

What evidence proves that this person has regularly performed this task?

Review performance reviews for past 5 years. Do these include statements about how this person performs this task? If yes, describe on a separate page and attach to this form. Attach copies if possible.			
Implicated in accidents/poor performance. Has this person been cited for poor performance of this task or ever been implicated in an accident or near-miss caused by performance of this task? If yes, describe on a separate page and attach to this form. Attach copies if possible.			
Evidence of prior training or certification. Are there records that this person attended and successfully completed training programs directly related to this task? Attended seminars? Does the person possess certification in relevant skills (e.g. NACE certification)? Attach copies of relevant records			

Reviewers:

Date:

Attachment A: Evaluation Methods Incorporated by Reference

[NOTE: The tasks and evaluation methods listed in the table below are only examples of how a completed Attachment A might appear. They have not actually been reviewed and accepted by Enbridge TS at this time. The rule allows Enbridge TS to accept many different evaluation curricula for each task as long as Enbridge TS has reviewed each evaluation curriculum and determined that it is a valid measure of a person's ability to perform the task and recognize and react to abnormal operating conditions.]

Enbridge TS anticipates that our contractors as well as third party testing agencies may develop evaluation programs for one or more tasks and ask Enbridge TS to accept persons evaluated according to those programs. Enbridge TS will evaluate these evaluation programs and all that Enbridge TS determine are acceptable will be listed below or in our OQ record keeping system.

A person need only have passed one of the acceptable evaluation methods listed – it is not necessary to pass all the listed methods.]

EXAMPLE:

The following evaluation methods have been reviewed by Enbridge TS and determined to be accepted for qualification in the tasks indicated:

Covered Tasks:	
Inspecting for shorted casings	
Inspecting for atmospheric corrosion	
Measuring pipe-to-soil potential	
Conducting gas leakage surveys	

Covered Tasks/Evaluation Methods Incorporated by Reference

The following evaluation methods have been reviewed by Enbridge TS and determined to be accepted for qualification in the tasks indicated:

Covered Tasks:	
NCCER OQ Program to include all covered tasks and evaluation methods.	Kansas Gas Services Program to include all covered tasks and evaluation methods.
INGAA Foundation OQ Program to include all covered tasks and evaluation methods.	Ondeo Nalco Energy Services to include all covered tasks and evaluation methods.
ETS OQ Program to include all covered tasks and evaluation methods.	EWeb OQ Program to include all covered tasks and evaluation methods.
Enbridge TN OQ Program to include all covered tasks and evaluation methods.	Operator Qualification Systems Group Program to include all covered tasks and evaluation methods.
Midwest Energy Association/Energy Training Network (MEA/Q41) to include all covered tasks and evaluation methods.	Operator Qualification Solutions Group (OQSG) Program to include all covered tasks and evaluation tools and evaluation methods.
Cantera Resources, Inc. Program to include all covered tasks and evaluation methods.	



ENBRIDGE™

**Enbridge TS Operator Qualification
Plan**

Revised 7/27/2004

**Attachment B: Incorporation by Reference of Qualification
Requirements of Companies for Performing Certain Covered
Tasks in Emergencies**

[NOTE: To be completed later]

Enbridge TS has identified the following companies upon whom it might call for emergency assistance. Enbridge TS has reviewed the evaluation methods used by these companies to qualify persons in the following tasks and has determined that these qualification requirements are acceptable alternative methods for evaluating qualifications to perform these tasks on Enbridge TS piping system:

Investigating leak/odor complaints on company piping	
Purging air from a pipeline	

¹"The operator may expand any of the seven required elements and add additional elements to their program but will only be held accountable to meet the requirements of this Subpart." 63 Fed Reg 57275

Evaluation Requirements Measuring Knowledge, Skills and Abilities and Abnormal Operating Conditions for Transmission and Gathering Covered Tasks

The following knowledge elements were identified as necessary for an individual to be qualified for one or more covered tasks [Note: Numbers refer to written tests, oral tests and observation evaluations developed by Safety and Compliance Evaluation, Inc.].

Knowledge of:

- K1. Properties of natural gas
- K1A. Properties of LPG
- K2. Ignition sources
- K2A. Ignition sources of LPG
- K3. Cathodic protection criteria
- K9. Causes of atmospheric corrosion
- K10. Bolted, flanged and unbolted insulated joints
- K11. Material properties and installation of insulated bolt sleeves and washers
- K12. Causes of corrosion
- K14. CP anodes and anode systems
- K15. CP rectifiers and rectifier systems
- K16. Causes of internal corrosion
- K18. ONE CALL system notification procedures
- K21. MAOP of the pipeline system
- K28. Natural gas migration
- K28A. LPG vapor migration
- K31. Purging practices and safety
- K34A. Company Standards and DOT requirements for proper depth and pipeline clearances from other structures.
- K36. Procedure for backfilling the trench, such as backfill materials, padding and compaction
- K37. Pipe coatings
- K39. Safety issues with blowing gas
- K39a. Safety issues with blowing LPG vapors
- K40. DOT pressure test requirements (49 CFR 192)
- K40A. DOT pressure requirements (49 CFR 195)
- K41. Watering and dewatering pipeline system safely, notifying local agencies, and all environmental requirements for water disposal.
- K43. Regulator operation
- K44. Overpressure protection device operation (49 CFR 192)
- K44A. Overpressure protection device operation (49 CFR 195)
- K45. Telemetry equipment
- K46A. DOT overpressure protection requirements (49 CFR 195)
- K49. DOT odorization requirements
- K50. DOT and company requirements for abandonment
- K55. Pipeline marking requirements
- K56. DOT 49CFR192 class location criteria

- K58. Gas leak investigation and make safe procedures.
- K59. Principles of operation of different types of valves
- K60. Principles of operation of different types of valves actuators
- K62. Principles of operation of compressors
- K63. Principles of operation of compressor drivers
- K64. Controller specific system knowledge all areas except East Texas
- K65. Controller specific system knowledge East Texas

The following abilities have been identified as necessary for an individual to be qualified for one or more covered tasks

Ability to:

- A1. Use the equipment to take pipe-to-soil readings
- A4. Use a wall thickness gauge
- A5. Measure electric voltage, current and resistance.
- A6. Apply tape coatings
- A7. Apply mastic coatings
- A8. Inspect a rectifier
- A9. Install a mechanical split sleeve
- A10. Test final coating for "holidays" (if required by company procedures)
- A11. Trace the source of interference from adjacent underground metallic structures.
- A12. Install a bolt-on leak clamp
- A13. Ability to Insert and Remove Coupons
- A14. Recognize atmospheric corrosion
- A15. Attach wire to pipe with a thermite weld or other method
- A16. Install and test CP anodes and anode systems.
- A17. Install and test CP rectifiers and rectifier systems.
- A18. Read gas system pipeline drawings and maps.
- A19. Use line locating equipment
- A20. Operate and maintain adequate gas system pressures without exceeding MAOP's
- A21. Remotely open and close valves.
- A22. Remotely start and stop compressors.
- A23. Remotely change pressure regulator set points.
- A24. Operate SCADA system
- A25. Weld split sleeve
- A27. Calibrate and use a CGI instrument.
- A32. Control the flow of gas while purging
- A33. Operate a backhoe
- A34. Recognize damage to the pipe or coating that would impair its serviceability
- A35. Control the flow of gas.
- A36. Operate gas valves.
- A37. Perform basic pipefitting.
- A38. Attach, use and read pressure gauges
- A39. Inspect vaults
- A40. Inspect telemetering equipment
- A41. Inspect pressure recording devices
- A42. Set the injection rate of an odorizer/Measure and calculate odorant consumption rates

- A44. Use an odorometer to measure odorant concentrations
- A45. Operate tapping equipment in accordance with manufacturer's procedures
- A46. Recognize external forces and land movement that could potentially jeopardize the pipeline
- A47. Follow manufacturer's procedures to repair a valve
- A48. Follow manufacturer's procedures to repair a valve actuator
- A49. Conduct a leak survey
- A51. Follow manufacturer's procedures for compressor maintenance
- A52. Use compressor diagnostic equipment
- A53. Properly sequence valves to start and stop a compressor
- A54. Inspect a pressure regulator station
- A55. Follow company or manufacturer's procedures to test and maintain emergency shutdown systems
- A56. Follow manufacturer's procedures to test and maintain gas detectors
- A57. Inspection of breakout tanks
- A58. Inspection of navigable waterway crossings
- A79. Make appropriate adjustments to cause proper performance of reverse current switches, diodes, and interference bonds

The following abnormal operating conditions have been identified as reasonably anticipated to be encountered during the performance of one or more covered tasks.

Abnormal Operating Conditions

- AOC1. Metal loss
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC6. Increase or decrease in flow rate outside normal limits
- AOC7. Unintended closure of valves or shutdown
- AOC8. Low oxygen atmosphere
- AOC9. Flammable atmosphere
- AOC10. Fire on a pipeline
- AOC11*. Inoperable/Failure of a pipeline component inspected, operated or maintained in the course of a covered task *[Note: Task specific – to be addressed under each applicable task in ability evaluation rather than in separate AOC evaluations.]
- AOC12. Burn-through/Penetration during welding
- AOC13. Overpressure (MAOP exceeded by more than 10 percent)
- AOC14. Under pressure
- AOC15. Under odorization
- AOC16. Stray current on pipeline
- AOC17. Alarms (e.g. control room operators)
- AOC18. Tripping an overpressure protection device
- AOC19. Loss of communications/telemetry/SCADA
- AOC20. Low pipe to soil potentials

EVALUATION REQUIREMENTS FOR COVERED TASKS

The following evaluation requirements have been established to ensure that individuals have the knowledge and abilities to perform the covered tasks and recognize and react to abnormal operating conditions. Covered tasks below are geared towards natural gas operations. In cases when individuals are qualifying on liquid pipeline systems natural gas specified evaluations such as K1 should be substituted with the liquid specific evaluations such as K1A.

1. Inspecting for shorted casings

Knowledge of :

- K1. Properties of natural gas
- K2. Ignition sources
- K3. Cathodic protection criteria

Ability to:

- A1. Use the equipment to take pipe-to-soil readings

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC10. Fire on a pipeline
- AOC20. Low pipe to soil potentials

2. Jacking pipe to clear a shorted casing

Knowledge of :

- K1. Properties of natural gas
- K2. Ignition sources

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10. Fire on a pipeline

3. Repairing or applying pipe coating in the field for maintenance

Knowledge of the

- K1. Properties of natural gas
- K2. Ignition sources
- K12. Causes of corrosion
- K37. Pipe coatings

Ability to:

- A6. Apply tape coatings
- A7. Apply mastic coatings
- A10. Test final coating for "holidays" (if required by company procedures)

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10. Fire on a pipeline

4. Measuring pipe-to-soil potential

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K3. Cathodic protection criteria

Ability to:

- A1. Use the equipment to take pipe-to-soil readings

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC10. Fire on a pipeline
- AOC11*. Inoperable/Failure of a test station
- AOC16. Stray current on pipeline
- AOC20. Low pipe to soil potentials

5. Performing a polarization survey

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K3. Cathodic protection criteria

Ability to:

- A1. Use the equipment to take pipe-to-soil readings

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC10. Fire on a pipeline
- AOC16. Stray current on pipeline
- AOC20. Low pipe to soil potentials

6. Measuring pipe wall thickness

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources

Ability to:

- A4. Use a wall thickness gauge

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10. Fire on a pipeline

7. Conduct a soil resistivity survey

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K3. Cathodic protection criteria

Ability to:

- A5. Measure electric voltage, current and resistance.

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC10. Fire on a pipeline

8. Insert/Remove coupons for Internal corrosion testing

Knowledge of:

- K1. Properties of natural gas
- K12. Causes of corrosion
- K16. Causes of internal corrosion

Ability to:

- A13. Ability Insert and Remove Coupons

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss
- AOC3. A leak in a pipeline that constitutes an emergency

9. Conducting interference testing

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources

K3. Cathodic protection (CP) criteria

Ability to:

A5. Measure electric voltage, current and resistance.

A11. Trace the source of interference from adjacent underground metallic structures.

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC10. Fire on a pipeline

AOC16. Stray current on pipeline

AOC20. Low pipe to soil potentials

10. Cleaning and either coating or jacketing pipe for atmospheric corrosion

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

K9. Causes of atmospheric corrosion

K37. Pipe coatings

Ability to:

A6. Apply tape coatings

A7. Apply mastic coatings

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC1. Metal loss

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC10. Fire on a pipeline

11. Electrically checking for proper performance reverse current switches, diodes, and interference bonds

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

K3. Cathodic protection criteria

Ability to:

A5. Measure electric voltage, current and resistance.

A79. Make appropriate adjustments to cause proper performance of reverse current switches, diodes, and interference bonds

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC10. Fire on a pipeline
- AOC11*. Inoperable/Failure of a reverse current switch, diode or interference bond
- AOC16. Stray current on pipeline
- AOC20. Low pipe to soil potentials

12. Installing, replacing and testing electrical isolation couplings on an existing pipeline

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K11. Material properties and installation of insulated bolt sleeves and washers.

Ability to:

- A5. Measure electric voltage, current and resistance.

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC10. Fire on a pipeline
- AOC11*. Inoperable/Failure of an electrical isolation coupling
- AOC16. Stray current on pipeline
- AOC20. Low pipe to soil potentials

13. Inspecting for atmospheric corrosion

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K9. Causes of atmospheric corrosion

Ability to:

- A14. Recognize atmospheric corrosion

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10. Fire on a pipeline

14. Inspecting the condition of exposed pipe or pipe coating

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K12. Causes of corrosion
- K37. Pipe coatings

Ability to:

- A4. Use a wall thickness gauge

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10. Fire on a pipeline

15. Installing/replacing a rectifier on an existing pipeline

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K3. Cathodic protection (CP) criteria

Ability to:

- A5. Measure electric voltage, current and resistance.
- A6 Apply Tape Coatings
- A7 Apply Mastic Coatings
- A15. Attach wire to pipe with a thermite weld or other method
- A17 Install and test CP rectifiers and rectifier systems

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10 Fire on a pipeline
- AOC11* Inoperable/Failure of a rectifier
- AOC20 Low pipe to soil potentials

16. Installing/replacing an anode on an existing line

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K3. Cathodic protection (CP) criteria
- K14. CP anodes and anode systems.

Ability to:

- A5. Measure electric voltage, current and resistance.
- A6 Apply Tape Coating
- A7 Apply mastic coating

A15. Attach wire to pipe with a thermite weld or other method

A16. Install and test CP anodes and anode systems.

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC1. Metal loss

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC10. Fire on a pipeline

AOC20. Low pipe to soil potentials

17. Ensure operation of a rectifier

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

K3. Cathodic protection (CP) criteria

K15. CP rectifiers and rectifier systems.

Ability to:

A8 Inspect a rectifier

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC10. Fire on a pipeline

AOC11*.Inoperable/Failure of a rectifier

18. Visually inspecting for internal corrosion

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

K16. Causes of internal corrosion

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC1. Metal loss affecting ability to withstand MAOP

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC10. Fire on a pipeline

19. Install/replace a corrosion test station on an existing pipeline

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K3. Cathodic protection criteria
- K12. Causes of corrosion

Ability to:

- A5. Measure electric voltage, current and resistance.
- A6. Apply tape coatings
- A7. Apply mastic coatings
- A15. Attach wire to pipe by thermite weld or other method

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss affecting ability to withstand MAOP
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10. Fire on a pipeline
- AOC11*. Inoperable/Failure of a test station
- AOC16. Stray current on pipeline
- AOC20. Low pipe to soil potentials

20. Line locating and markout

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K18. ONE CALL system notification procedures.

Ability to:

- A18. Read gas system pipeline drawings and maps.
- A19. Use line locating equipment

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC10. Fire on a pipeline

21. Inspection of 3rd party excavations for damage prevention

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources

K18. ONE CALL system notification procedures.

Ability to:

A18. Read gas system pipeline drawings and maps.

A34. Recognize damage to the pipe or coating that would impair its serviceability

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC1. Metal loss affecting ability to withstand MAOP

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC10. Fire on a pipeline

22. Upgrading the MAOP of a pipeline

Evaluations must be developed and conducted just prior to any uprate procedure

24. Controlling & monitoring gas pressures and flows – All except East Texas

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

K45. Telemetry equipment

K59. Principles of operation of different types of valves

K60. Principles of operation of different types of valves actuators

K62. Principles of operation of compressors

K64. Controller specific system knowledge

Ability to:

A18. Read gas system pipeline drawings and maps

A20. Operate and maintain adequate gas system pressures without exceeding MAOP's

A21. Remotely open and close valves

A22. Remotely start and stop compressors

A23. Remotely change pressure regulator set points

A24. Operate SCADA systems

A35. Control the flow of gas

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC3. A leak in a pipeline that constitutes an emergency.

AOC5. Conditions requiring shutdown or MAOP reduction

AOC6. Increase or decrease in flow rate outside normal limits

AOC7. Unintended closure of valves or shut down

AOC10. Fire on a pipeline

- AOC13. Overpressure (MAOP exceeded by more than 10 percent)
- AOC14. Under pressure
- AOC18. Tripping an overpressure protection device
- AOC19. Loss of communications/telemetry/SCADA

24ETX. Remotely controlling & monitoring gas pressure and flows – East Texas

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K45. Telemetering equipment
- K59. Principles of operation of different types of valves
- K60. Principles of operation of different types of valves actuators
- K62. Principles of operation of compressors
- K65. Controller specific system knowledge East Texas

Ability to:

- A18. Read gas system pipeline drawings and maps
- A20. Operate and maintain adequate gas system pressures without exceeding MAOP's
- A21. Remotely open and close valves
- A22. Remotely start and stop compressors
- A24. Operate SCADA systems
- A35. Control the flow of gas

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC7. Unintended closure of valves or shut down
- AOC10. Fire on a pipeline
- AOC13. Overpressure (MAOP exceeded by more than 10 percent)
- AOC14. Under pressure
- AOC18. Tripping an overpressure protection device
- AOC19. Loss of communications/telemetry/SCADA

26. Install a welded split sleeve

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources

Ability to:

API 1104 Welding certification

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss affecting ability to withstand MAOP
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC8. Low oxygen atmosphere

AOC9. Flammable atmosphere

AOC10. Fire on a pipeline

AOC12. Burn-through/Penetration during welding

AOC16. Stray current on pipeline

27. Install a mechanical split sleeve

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

Ability to:

A09. Install a mechanical split sleeve

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC1. Metal loss affecting ability to withstand MAOP

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC8. Low oxygen atmosphere

AOC9. Flammable atmosphere

AOC10. Fire on a pipeline

AOC16. Stray current on pipeline

28. Install a bolt-on leak clamp

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

Ability to:

A12. Install a bolt on leak clamp

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC1. Metal loss affecting ability to withstand MAOP

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC8. Low oxygen atmosphere

AOC9. Flammable atmosphere

AOC10. Fire on a pipeline

AOC16. Stray current on pipeline

29. Fillet weld a patch over a leak

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources

Ability to:

API 1104 welding certification

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC6. Increase or decrease in flow rate outside normal limits
- AOC8. Low oxygen atmosphere
- AOC9. Flammable atmosphere
- AOC10. Fire on a pipeline

30. Cut out and replace a leaking/damaged section of pipe

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources

Ability to:

API 1104 Welding certification

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss affecting ability to withstand MAOP
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC8. Low oxygen atmosphere
- AOC9. Flammable atmosphere
- AOC10. Fire on a pipeline
- AOC12. Burn-through/Penetration during welding
- AOC16. Stray current on pipeline

31. Repair a non-leaking damaged pipe with ClockSpring™

Will rely on Clockspring™ certification

32. Repairing, replacing or maintaining milepost markers, line markers, warning signs & vents

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K55. DOT requirements for warning signs and line markers

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC10. Fire on a pipeline

33. Backfilling a trench following maintenance

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K36. Procedure for backfilling the trench, such as backfill materials, padding and compaction

Ability to:

- A33. Operate a backhoe

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC10. Fire on a pipeline

34. Inspect pipe at a maintenance job for damage

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources

Ability to:

- A34. Recognize damage to the pipe or coating that would impair its serviceability

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss affecting ability to withstand MAOP
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10. Fire on a pipeline

35. Purging air from a pipeline

Knowledge of:

- K1. Properties of gas.
- K2. Ignition sources
- K31. Purging practices and safety
- K39. Safety issues with blowing gas

Ability to:

- A27. Calibrate and use a CGI instrument.
- A32. Control the flow of gas while purging
- A36. Operate gas valves.
- A37. Perform basic pipe fitting. (Working with bolted and threaded pipe connections, preparing threads for connection, proper bolt tightening procedures, recognizing proper materials for high pressure applications, etc.)

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC8. Low oxygen atmosphere
- AOC9. Flammable atmosphere
- AOC10. Fire on a pipeline

36. Purging gas from a pipeline

Knowledge of:

- K1. Properties of gas.
- K2. Ignition sources
- K31. Purging practices and safety
- K39. Safety issues with blowing gas

Ability to:

- A27. Calibrate and use a CGI instrument.
- A32. Control the flow of gas while purging
- A36. Operate gas valves.
- A37. Perform basic pipe fitting. (Working with bolted and threaded pipe connections, preparing threads for connection, proper bolt tightening procedures, recognizing proper materials for high pressure applications, etc.)

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC8. Low oxygen atmosphere
- AOC9. Flammable atmosphere
- AOC10. Fire on a pipeline

37. Performing a pressure test on existing pipe

Knowledge of:

- K1. Properties of gas
- K2. Ignition sources
- K40. DOT pressure test requirements

K41. Watering and dewatering pipeline system safely, notifying local agencies, and all environmental requirements for water disposal.

Ability to:

A18. Read gas system pipeline drawings and maps.

A37. Perform basic pipe fitting. (Working with bolted and threaded pipe connections, preparing threads for connection, proper bolt tightening procedures, recognizing proper materials for high pressure applications, etc.)

A38. Use pressure test gauges and recording charts.

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC1. Metal loss affecting ability to withstand MAOP

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC8. Low oxygen atmosphere

AOC9. Flammable atmosphere

AOC10. Fire on a pipeline

38. Inspect and test pressure regulator stations

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

K21. MAOP of the pipeline system

K43. Regulator operation

K44. Overpressure protection device operation

K45. Telemetry equipment

Ability to:

A14. Recognize atmospheric corrosion

A27. Calibrate and use a CGI instrument.

A37. Perform basic pipe fitting.

A38. Attach, use and read pressure gauges

A39. Inspect vaults (if any regulators are located in vaults)

A40. Inspect telemetry equipment, if applicable

A41. Inspect pressure recording devices

A54. Inspect a pressure regulator

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC1. Metal loss affecting ability to withstand MAOP

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC10. Fire on a pipeline

- AOC11*. Inoperable/Failure of a regulator or relief valve
- AOC13. Overpressure (MAOP exceeded by more than 10 percent)
- AOC14. Under pressure
- AOC18. Tripping an overpressure protection device
- AOC19. Loss of communications/telemetry/SCADA

39. Testing overpressure protection

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K21. MAOP of the pipeline system
- K46. DOT overpressure protection requirements

Ability to:

- A38. Attach, use and read pressure gauges and recording charts.

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss affecting ability to withstand MAOP
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10. Fire on a pipeline
- AOC11*. Inoperable/Failure of a relief valve
- AOC13. Overpressure (MAOP exceeded by more than 10 percent)
- AOC14. Under pressure
- AOC18. Tripping an overpressure protection device

40. Bypass a regulator

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K21. MAOP of the pipeline system

Ability to:

- A36. Operate gas valves.
- A38. Attach, use and read pressure gauges

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10. Fire on a pipeline
- AOC11*. Inoperable/Failure of a valve
- AOC13. Overpressure (MAOP exceeded by more than 10 percent)
- AOC14. Under pressure
- AOC18. Tripping an overpressure protection device

41. Field interpretation of pressure recording charts

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K21. MAOP of the pipeline system

Ability to:

- A41. Inspect pressure-recording devices

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC10. Fire on a pipeline
- AOC13. Overpressure (MAOP exceeded by more than 10 percent)
- AOC14. Under pressure
- AOC18. Tripping an overpressure protection device

42. Change/repair chart recorders at pressure regulator stations.

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K21. MAOP of the pipeline system

Ability to:

- A38. Attach, use and read pressure gauges

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10. Fire on a pipeline
- AOC13. Overpressure (MAOP exceeded by more than 10 percent)
- AOC14. Under pressure
- AOC18. Tripping an overpressure protection device

43. Operating an odorizer.

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K49. DOT odorization requirements

Ability to:

- A42. Set the injection rate of an odorizer/Measure and calculate odorant consumption rates

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.

- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC11*. Inoperable/Failure of an odorizer
- AOC10. Fire on a pipeline
- AOC15. Under odorization

44. Monitor natural gas odorization levels

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K49. DOT odorization requirements

Ability to:

- A44. Use an odorometer to measure odorant concentrations

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC10. Fire on a pipeline
- AOC15. Under odorization

45. Abandonment or deactivation of facilities

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K50. DOT and company requirements for abandonment.

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC10. Fire on a pipeline

46. Tapping pipelines under pressure

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources

Ability to:

- A36. Operate gas valves.
- A38. Use pressure test gauges and recording charts.
- A37. Perform basic pipefitting. (Working with bolted and threaded pipe connections, preparing threads for connection, proper bolt tightening procedures, recognizing proper materials for high-pressure applications, etc.)
- A45. Operate tapping equipment in accordance with manufacturer's procedures

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC1. Metal loss

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC7. Unintended closure of valves or shutdown

AOC8. Low oxygen atmosphere

AOC9. Flammable atmosphere

AOC10. Fire on a pipeline

47. Conducting gas leakage surveys

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

K28. Natural gas migration.

Ability to:

A18. Read gas system pipeline drawings and maps.

A27. Calibrate and use a CGI instrument.

A49. Conduct a leak survey

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC5. Conditions requiring shutdown or MAOP reduction

AOC10. Fire on a pipeline

48. Patrolling

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

K55. Pipeline marking requirements

K56. DOT 49CFR192 class location criteria

Ability to:

A18. Read gas system pipeline drawings and maps.

A46. Recognize external forces and land movement that could potentially jeopardize the pipeline

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC5. Conditions requiring shutdown or MAOP reduction

AOC10. Fire on a pipeline

AOC18. Tripping an overpressure protection device

49. Investigating leak/odor complaints on company piping

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K28. Natural gas migration.
- K58. Gas leak investigation and make safe procedures.

Ability to:

- A27. Calibrate and use a CGI instrument.
- A49. Conduct a leak survey

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC9. Flammable atmosphere
- AOC10. Fire on a pipeline

50. Inspect valves

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K59. Principles of operation of different types of valves.

Ability to:

- A18. Read gas system pipeline drawings and maps.
- A36. Operate gas valves.

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC7. Unintended closure of valves or shutdown
- AOC10. Fire on a pipeline
- AOC11* Inoperable/Failure of a valve

51. Repair and maintain transmission line valves

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources

K59. Principles of operation of different types of valves.

Ability to:

A47. Follow manufacturer's procedures to repair a valve

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC7. Unintended closure of valves or shutdown

AOC10. Fire on a pipeline

AOC11* Inoperable/Failure of a valve

52. Maintaining valve operators (actuators)

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

K60. Principles of operation of different types of valves actuators

Ability to:

A36. Operate gas valves.

A48. Follow manufacturer's procedures to repair a valve actuator

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC7. Unintended closure of valves or shutdown

AOC10. Fire on a pipeline

AOC11* Inoperable/Failure of a valve actuator

53. Welding on a pipeline for maintenance

Ability to:

Complete API 1104 Welding certification

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

AOC1. Metal loss affecting ability to withstand MAOP

AOC2. Unintended movement or abnormal loading of a pipeline

AOC3. A leak in a pipeline that constitutes an emergency.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

AOC5. Conditions requiring shutdown or MAOP reduction

AOC9. Flammable atmosphere

AOC10. Fire on a pipeline

- AOC12. Burn-through/Penetration during welding
- AOC16. Stray current on pipeline

54. Non-destructive testing of maintenance welds

Ability to:

- ASNT certification to X-ray welds

55. Repair inline welds

Ability to:

- API 1104 Welding certification

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC9. Flammable atmosphere
- AOC10. Fire on a pipeline
- AOC12. Burn-through/Penetration during welding

56. Operating a pipeline compressor

Knowledge of :

- K1. Properties of natural gas
- K2. Ignition sources
- K62. Principles of operation of compressors
- K63. Principles of operation of compressor drivers

Ability to:

- A53. Properly sequence valves to start and stop a compressor

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss affecting ability to withstand MAOP
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC6. Increase or decrease in flow rate outside normal limits
- AOC7. Unintended closure of valves or shutdown
- AOC10. Fire on a pipeline
- AOC11*. Inoperable/Failure of a compressor component
- AOC13. Overpressure (MAOP exceeded by more than 10 percent)
- AOC14. Under pressure
- AOC17. Alarms (e.g. local alarms)
- AOC18. Tripping an overpressure protection device

AOC19. Loss of communications/telemetry/SCADA

57. Repair a compressor

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K62. Principles of operation of compressors
- K63. Principles of operation of compressor drivers

Ability to:

- A51. Follow manufacturer's procedures for compressor maintenance
- A52. Use compressor diagnostic equipment

Ability to recognize and react to abnormal operating conditions:

Safety-related conditions:

- AOC1. Metal loss affecting ability to withstand MAOP
- AOC2. Unintended movement or abnormal loading of a pipeline
- AOC3. A leak in a pipeline that constitutes an emergency.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline
- AOC5. Conditions requiring shutdown or MAOP reduction
- AOC7. Unintended closure of valves or shutdown
- AOC10. Fire on a pipeline
- AOC11*. Inoperable/Failure of a compressor component
- AOC17. Alarms (e.g. local alarms)
- AOC18. Tripping an overpressure protection device
- AOC19. Loss of communications/telemetry/SCADA

58. Inspect and repair compressor engine fuel gas piping

The knowledge, abilities and abnormal operating conditions for this task are the same as for the type of inspection or repair of any other gas piping.

59. Test and maintain emergency shutdown systems

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources

Ability to:

- A55. Follow company or manufacturer's procedures to test and maintain emergency shutdown systems

Ability to recognize and react to abnormal operating conditions:

- AOC7. Unintended closure of valves or shutdown
- AOC10. Fire on a pipeline
- AOC11*. Inoperable/Failure of the ESD system
- AOC17. Alarms (e.g. local alarms)
- AOC18. Tripping an overpressure protection device
- AOC19. Loss of communications/telemetry/SCADA

- AOC17. Alarms (e.g. local alarms)
- AOC18. Tripping an overpressure protection device
- AOC19. Loss of communications/telemetry/SCADA

60. Maintaining gas detection systems and gas alarms in compressor stations

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources

Ability to:

- A56. Follow manufacturer's procedures to test and maintain gas detectors

Ability to recognize and react to abnormal operating conditions:

- AOC10. Fire on a pipeline
- AOC11*. Inoperable/Failure of a gas detector
- AOC17. Alarms (e.g. gas alarms)

61. Inspecting Breakout Tanks (49 CFR 195)

Knowledge of:

- K1.A. Properties of LPG
- K2.A. Ignition sources of LPG

Ability to:

- A57. Inspection of Breakout Tanks

62. Inspecting Navigable Waterway Crossings

Knowledge of:

- K1.A. Properties of LPG
- K2.A. Ignition sources of LPG
- K9. Causes of atmospheric corrosion
- K12. Causes of corrosion
- K37. Pipe coatings
- K55. Pipeline marking requirements

Ability to:

- A58. Inspect navigable waterway crossings

Ability to recognize and react to abnormal operating conditions:

- AOC2. Unintended movement or abnormal loading of a pipeline.
- AOC4. Material defect or physical damage that impairs the serviceability of a pipeline.

63. Joining Plastic Pipe for Maintenance

Knowledge of:

- K1. Properties of natural gas
- K2. Ignition sources
- K28. Natural gas migration

Ability to:

A2. Ability to Repair a PVC Pipeline Using Solvent Cement

Ability to recognize and react to abnormal operating conditions:

AOC2. Unintended movement or abnormal loading of a pipeline.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline.

AOC9. Flammable Atmosphere

64. Inspect Plastic Pipe Fusion Joint - Maintenance

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

K28. Natural gas migration

Ability to:

A3. Ability to Fuse and Inspect Plastic Pipe Joints

Ability to recognize and react to abnormal operating conditions:

AOC2. Unintended movement or abnormal loading of a pipeline.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline.

AOC9. Flammable Atmosphere

65. Replacing a Section of Existing Tracer Wire

Knowledge of:

K1. Properties of natural gas

K2. Ignition sources

K28. Natural gas migration

K58. Gas leak investigation and make safe procedures

Ability to:

A59. Ability to install and splice tracer wire and recoat with insulation

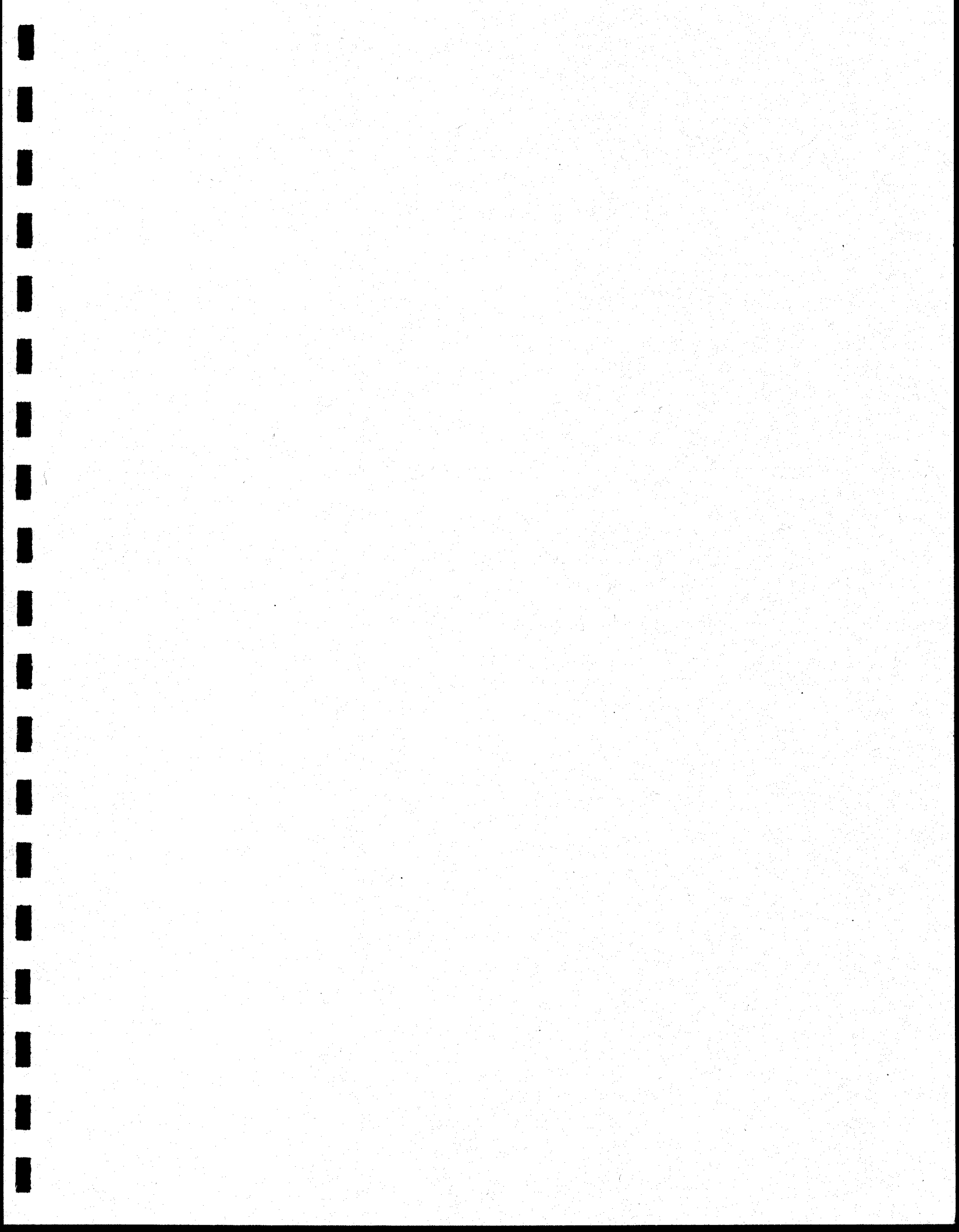
Ability to recognize and react to abnormal operating conditions:

AOC2. Unintended movement or abnormal loading of a pipeline.

AOC3. A leak in a pipeline that constitutes an emergency

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline.

AOC9. Flammable Atmosphere



OQ Knowledge Evaluation Record

Last Name:	First Name:	ID #:
Exam administered and graded by:		Date:

The following knowledge elements were identified as necessary for an individual to be qualified for one or more covered tasks.

Knowledge of:

K1. Properties of natural gas

(True/False) Natural gas is toxic.

1. True
2. False

Why is odorant added to natural gas?

1. To make it burn better.
2. To give it cleaner exhaust
3. To give the gas a distinctive odor
4. To make the gas smell better.

Is natural gas heavier or lighter than air?

1. Lighter than air
2. Heavier than air
3. Same as air

Natural gas is flammable when mixed with air between which two approximate concentrations?

1. 90% to 100% gas in air
2. 5% to 15% gas in air
3. 10% to 20% gas in air
4. 1% to 5% gas in air

Natural gas can cause asphyxiation when:

1. Natural gas reduces the blood's ability to absorb oxygen
2. Natural gas reacts with air to form a toxic gas
3. Natural gas displaces air and reduces the oxygen concentration
4. Natural gas cannot cause asphyxiation under any circumstances

K1A.. Properties of LPG

(True/False) LPG will liquefy readily under pressure at normal temperatures?

1. True
2. False

(True/False) LPG stands for liquefied petroleum gas?

1. True
2. False

LPG is comprised of various mixtures of?

1. Liquefied butane and propane
2. Crude oil and water
3. Gasoline and kerosene
4. Diesel and gasoline

Is LPG vapor heavier or lighter than air?

1. Lighter than air
2. Heavier than air
3. Same as air

LPG boils between what approximate temperatures?

1. 0 deg. F and 32 deg. F.
2. 31 deg. F and -43 deg. F.
3. 100 deg. F. and 112 deg. F.
4. 125 deg. F. and 135 deg. F.

LPG vapors can cause asphyxiation when:

1. LPG reduces the blood's ability to absorb oxygen.
2. LPG reacts with air to form a toxic gas.
3. LPG displaces air and reduces the oxygen concentration.
4. LPG cannot cause asphyxiation under any circumstances.

K2. & K2.A. Ignition sources

Which of the following are potential sources of ignition? (Check all that apply)

1. Smoking
2. Cigarette lighters and matches
3. Electric tools
4. Air-driven tools with non-sparking attachments
5. Cellular telephones
6. Welding igniters
7. Motor vehicle ignitions
8. Intrinsically-safe flashlights
9. Intrinsically-safe electrical switches
10. Household electrical switches
11. Any electrical spark

What is the best way to prevent motorized equipment from coming in contact with an escaping gas/LPG cloud?

1. Keep equipment completely covered up.
2. Operate the equipment downwind from the job site.
3. Keep equipment engines running
4. Operate the equipment upwind from the job site.

How does a bond wire eliminate arcing when a metal pipe is cut or separated?

1. It keeps the pipe together until the current is shut off.
2. It grounds the pipe to the earth.
3. It provides a bypass for current to flow across the gap through a conductor
4. It reduces the voltage

What must you do before welding, cutting or using non-explosion-proof tools in an area that may contain a flammable gas/LPG mixture?

1. Locate all pipe and underground facilities within the right of way
2. Make sure all gas in area is shut off
3. Position a dry chemical fire extinguisher 150 feet from the work area.
4. Check the area for gas with a Combustible Gas Indicator. (C.G.I.)

Prior to venting gas/LPG to the atmosphere which of the following should be done?
(Check all that apply)

1. Remove potential ignition sources from the area
2. Place vehicles and personnel downwind of the venting
3. Provide a fire extinguisher
4. Ignite the venting gas to prevent a gas cloud from forming

K3. Cathodic protection criteria

Which of the following could be an acceptable pipe-to-soil potential?

1. negative 0.99 volts
2. 0.95 volts
3. 0.87 ohms
4. negative 0.80 volts

K9. Causes of atmospheric corrosion

(True/False) On gas facilities, atmospheric corrosion can occur anywhere unprotected metal is exposed to air, even in belowground vaults.

1. True
2. False

What causes atmospheric corrosion?

1. A chemical reaction between the pipe and its surrounding elements.
2. Weather conditions that cause a magnetic field around the pipe.
3. Areas of stress that deform the surface of the pipe.

4. Exposure to sunlight

How does pipe coating help stop atmospheric corrosion?

1. It reacts with corroded metal to stop spreading.
2. It reacts with the pipe to make it corrosion proof.
3. It stops contact between the pipe and the electrolyte.
4. It confines corrosion to small-localized areas.

K10. Bolted, flanged and unbolted insulated joints

What is the purpose of an insulated joint? (circle all that apply)

1. To prevent heat from transferring across the joint
2. To prevent electrical flow across the joint
3. To electrically isolate cathodically protected pipe sections from other pipe sections
4. All of the above

Which of the following must be avoided in a properly installed insulated joint

1. Metal-to-metal contact across the joint
2. Insulation separating flanged ends.
3. Insulation of bolts
4. Gasket between flanges

K11. Material properties and installation of insulated bolt sleeves and washers.

Any type of gasket material can be used in an insulated joint

1. True
2. False

An important property of gasket material for insulated joints is

1. Resistance to chemicals
2. Ability to pass the flow of electrical current
3. Ability to block the flow of electrical current
4. Ability to block the transfer of heat

K12. Causes of corrosion

What causes dissimilar metal corrosion?

1. Two metals that expand and contract at different rates
2. Two metals that have different electrical potential
3. Two different metals that are in contact with natural gas
4. Two different metals that share the same cathode

Galvanic corrosion occurs where:

1. Electrons flow from the soil onto the pipe
2. Electrons flow from the pipe to the soil

3. Pipe is at high pressure and temperature
4. Pipeline pressures rise and fall frequently

K14. CP anodes and anode systems.

Which of the following substances can be used to apply cathodic protection to steel pipe.
(check all that apply)

1. Zinc
2. Magnesium
3. Copper
4. Aluminum

To control corrosion the anode must be electrically insulated from the pipe

1. True
2. False

K15. CP rectifiers and rectifier systems.

Rectifiers convert

1. DC to AC current
2. AC to DC current
3. 3 phase to single phase AC current
4. 60 Hz to 120 Hz AC current

Which rectifier lead should be connected to the pipe?

1. Positive
2. Negative

K16. Causes of internal corrosion

Which of the following can cause internal corrosion (check all that apply):

1. Water accumulating in low spots inside the pipeline
2. High levels of hydrogen sulfide and water in the gas
3. Low gas pressure
4. Carbon dioxide and water in the gas
5. Gas that is dry

K18. ONE CALL system notification procedures.

Other than emergencies, notification must be made to ONE-CALL Agencies at least _____ before the start of excavation activity.

1. 1 day
2. 2 days
3. 3 days
4. 1 week

Once marked, excavation can begin anytime in the next month without requiring a relocate and mark.

1. True
2. False

K21. MAOP

MAOP stands for:

1. Maximum Active Original Pressure
2. Minimum Active Original Pressure
3. Maximum Allowable Operating Pressure
4. Minimum Allowable Operating Pressure

K28. Natural gas migration.

Which of the following conditions can cause gas to migrate underground rather than coming up directly above a leak? (check all that apply)

1. Pavement over the pipeline
2. Frozen ground above the pipeline
3. Air temperatures above 90 degrees F
4. Wind over 15 miles per hour

True or false, dead vegetation is one indication of a potential gas leak

1. True
2. False

K28.A. LPG vapor migration.

A visible ice ball on LPG piping or on the ground surface is a good indication of an LPG leak?

1. True
2. False

LPG vapors tend to stay close to the ground because they are heavier than air?

1. True
2. False

K31. Purging practices and safety

What is the primary reason for following proper procedures when purging a line?

1. To clear the line of debris before you put it in service
2. To keep gas and air from mixing in the same line
3. So condensation doesn't result in corrosion
4. To ensure there are no leaks on the line

What would you use to test for gas in the purge discharge?

1. A match
2. A combustible gas instrument
3. An flame ionization unit
4. As odorometer

When purging air from the pipeline using gas, what concentration of gas in air at the outlet indicates purging is complete?

1. 100% gas
2. Greater than 15% gas
3. Less than 5% gas
4. Between 5 and 15% gas
5. 0% gas

K34.A. Company standards and DOT requirements for proper depth and pipeline clearances from other structures.

Under Part 195 CFR, what is the minimal burial depth of a liquid line?

1. 5 feet
2. 4 feet
3. 3 feet
4. 30 inches

Under Part 195 CFR, it is not necessary to maintain a list of critical bond locations?

1. True
2. False

K36. Procedure for backfilling the trench, such as backfill materials, padding and compaction

When backfilling a trench after maintenance any rocks found should be placed under the pipe to provide support.

1. True
2. False

K37. Pipeline coatings

The primary purpose of pipe coating is

1. To make the pipe blend in with its background
2. To make the pipe smooth for easier installation
3. To electrically insulate the pipe from the surrounding soil
4. All of the above

Gaps in pipe coating are to be avoided because

1. Corrosion can occur at these locations
2. It gives the pipe a poor appearance
3. Coating gaps increase the friction on the pipe

4. All of the above

K39. Safety issues involved in blowing gas (Control of ignition sources, blowing gas near structures, electric power facilities, etc.)

When venting gas from the pipeline, care must be taken to ensure

1. No sources of ignition are nearby
2. The gas will not enter any buildings
3. The gas will not be vented onto electrical power facilities
4. All of the above

K39.A. Safety issues involved in blowing LPG vapors (Control of ignition sources, blowing vapors near structures, electric power facilities, etc.)

When venting LPG vapors it is a good safety practice to erect a stand pipe from the vent valve to elevate the escaping vapors to assist in dissipation?

1. True
2. False

When venting LPG from the pipeline, care must be taken to ensure:

1. No sources of ignition are nearby
2. The vapors will not enter any buildings
3. The vapors will not be vented onto electrical power facilities
4. All the above

K40. DOT pressure test requirements (49 CFR Part 192 – Subpart J)

For steel pipelines operating at a hoop stress of 30% or more of SMYS, the hydrostatic test pressure in a strength test must be maintained for a minimum of _____.

1. 1 hr.
2. 4 hrs.
3. 8 hrs.
4. 24 hrs.

Records of all pressure tests must be retained for the useful life of the pipeline and must contain _____.

1. Test pressure
2. Test Duration
3. Elevation variations
4. All of these

The pipeline operator must keep all persons not working on a pressure test outside of the test area whenever the hoop stress of the pipeline will exceed _____ of SMYS.

1. 30%
2. 50%
3. 100%

4. 125%

In a Class 1 or Class 2 location, each compressor, regulator and meter station must be tested to at least _____ location test requirements.

1. Class 1
2. Class 2
3. Class 3
4. Class 4

What test medium is used for a pressure test of a 2-mile segment of the mainline?

1. Air
2. Nitrogen
3. Natural Gas
4. Water

K40.A. DOT pressure test requirements (49 CFR Part 195)

Records of all hydrostatic pressure tests must be maintained for:

1. 5 years
2. 10 years
3. The useful life of the pipeline
4. 50 years

What factors determine the required test pressure? (Circle all that apply)

1. The materials of construction
2. The MAOP of the pipeline
3. The weather
4. The intended product

The hydrostatic test pressure shall be maintained for what duration for the pipeline?

1. 2 hours
2. 3 hours
3. 4 hours
4. 8 hours

K41. Watering and dewatering pipeline system safely, notifying local agencies, and all environmental requirements for water disposal.

When a pressure test is complete the water should be drained into the nearest lake or stream – no permits or notifications are required.

1. True
2. False

K43. Regulator operation

What can happen to the regulator valve seat to prevent proper closure?

1. Erosion of the seat.
2. Hydrate formation.
3. Dirt or solids on seat.
4. All of these.

What operating conditions can produce hydrates in a regulator?

1. Low pressure drops & high gas temperatures.
2. Low pressure drops & low gas temperatures.
3. High pressure drops & low gas temperatures.
4. High pressure drops & high gas temperatures.

What could cause a regulator to provide poor downstream pressure control?

1. Partial blockage of the control tubing (dirt or liquids).
2. Sudden changes in flow rate.
3. Inlet pressure variations.
4. All of these.

K44. Overpressure protection device operation (192)

Overpressure protection refers to:

1. Adding extra pipe wall thickness in populated areas
2. High pressure alarms in the control room
3. Depth of cover over the pipeline
4. Relief valves, monitor regulators or pressure switches installed on the pipeline

Under 49 CFR Part 192.201 of DOT Pipeline Regulations, what is the highest allowed set point for overpressure protection?

1. 110% of MAOP
2. 100% of MAOP
3. 120% of MAOP
4. No limit

Who is protected by pipeline overpressure control devices?

1. The Public
2. Pipeline Employees
3. Contractors
4. All of these

Under DOT 192.739 Regulations, how often must pipeline overpressure protection equipment be tested?

1. Every 6 months
2. Once per year
3. Every 18 months
4. Every 2 years

K44.A. Overpressure protection device operation (195)

Overpressure protection refers to:

1. Adding extra pipe wall thickness in populated areas
2. High pressure alarms in the control room
3. Depth of cover over the pipeline
4. Relief valves, monitor regulators or pressure switches installed on the pipeline

Under 49 CFR Part 195 of DOT Pipeline Regulations, how often must overpressure protection devices be tested in LPG service?

1. Every 6 months
2. Once per year
3. Every 18 months
4. 2 times per year

What is a major cause of overpressure in a liquid pipeline?

1. Too big a pump
2. Too big a impeller
3. Leaking valves
4. Thermal expansion of the liquid when bottled up in short sections of pipeline or valve bodies.

K45. Telemetry equipment

What are the most common types of communication systems used for pipeline SCADA systems?

1. Serial, Sequential, Bus-based
2. Telephone Leased Lines, Microwave, Optical Fiber, Satellite
3. Radio, Cell Phone, Satellite
4. EPROM, Flash PROM, UPS

What component of a SCADA system gathers data from field instruments and sends it to the Host Computer in the Control Room?

1. PLC
2. Flow Computer
3. RTU
4. UPS

An RTU is made up of what components?

1. Battery (UPS), Processor (CPU), I/O Modules, Communication Link
2. Man-Machine Interface (MMI), Alarm Monitoring, Report Generation
3. UNIX Hardware, Modbus Software, Stoner Network
4. Flow Computer, Chromatograph, Meter, Gravimeter

What is the communication function of the Host Computer in a SCADA system?

1. Assume control of compressor stations during a communications failure.
2. Provide leak detection for the pipeline system.
3. Coordinate the communication between several RTU's and the Control Room.
4. All of these.

K46.A. DOT overpressure protection requirements

Under 49 CFR Part 195, what is the highest allowed set point for an overpressure protection device?

1. 110% MAOP
2. 100% MAOP
3. 120% MAOP
4. No limit

Who is protected by overpressure protection devices?

1. The public
2. Pipeline employees
3. Contractors
4. All the above

K49. DOT odorization requirements

When natural gas is odorized the odorant concentration must be:

5. Enough so that the smell is detectable at 100 feet from the pipeline
6. Enough so that the smell is detectable at 20 percent or less of the lower flammable limit
7. 0.1% odorant in gas
8. 1.0% odorant in gas

Periodic mainline odorant level "sniff" tests at the extremities of the pipeline must be conducted at what minimum frequency?

5. daily
6. weekly
7. monthly
8. annually

K50. DOT and company requirements for abandonment.

Any pipeline being abandoned must be (circle all that apply)

1. Purged of gas
2. Disconnected from all sources of gas
3. Filled with water or inert material
4. Sealed at the ends

Any liquids found in a pipeline should be:

1. Drained onto the right-of-way

2. Collected and disposed of off-site
3. Tasted
4. Left in the pipeline

K55. Pipeline marking requirements

Pipeline markers are required at (circle all that apply)

1. Railroad crossings
2. Road crossings
3. River and stream crossings
4. Locations crossing other buried utilities

Other than in densely populated areas, lettering on pipeline markers must be at least

1. ½ inch high
2. 1 inch high
3. 2 inches high
4. 6 inches high

Markers must include the name of the pipeline operator

1. True
2. False

Markers must include a telephone number where the operator can be reached only during normal business hours

1. True
2. False

K56. DOT 49CFR192 class location criteria

What is the width the area along a pipeline that is defined as a "class location unit"?

1. 220 yards wide (110 yards on either side of the pipeline)
2. 440 yards wide (220 yards on either side of the pipeline)
3. 880 yards wide (440 yards on either side of the pipeline)
4. 1 mile wide (1/2 mile on either side of the pipeline)

Each separate dwelling unit in a multiple unit building is counted as a separate building for Class Location purposes.

1. True
2. False

A Class 1 Location unit has how many dwellings?

1. More than 10 but fewer than 46
2. 10 or fewer
3. 46 or more
4. Several multi-story buildings

A Class 2 Location unit has how many dwellings?

1. More than 10 but fewer than 46
2. 10 or fewer
3. 46 or more
4. Several multi-story buildings

A Class 3 Location unit has how many dwellings?

1. More than 10 but fewer than 46
2. 10 or fewer
3. 46 or more
4. Several multi-story buildings

A Class 4 Location unit has how many dwellings?

1. More than 10 but fewer than 46
2. 10 or fewer
3. 46 or more
4. Several multi-story buildings

K58. Gas leak investigation and make safe procedures.[Needs to be customized for each pipeline]

When approaching the site of a suspected leak, gas readings should be taken

1. Continuously while locating the party who reported the leak
2. Continuously after the calling party identifies the suspected leak
3. Downwind at 10 foot intervals
4. On a 50 foot grid pattern

The area should be evacuated if

1. The gas smell is intense
2. A gas reading of 1% or more is detected near a structure
3. A gas reading of 2% or more is detected in an open area
4. All of the above

In addition to evacuating the area, the responder should (circle all that apply)

1. Contact local emergency response
2. Create an exclusion zone around the leak
3. Allow local news media inside the exclusion zone
4. Eliminate sources of ignition

K59. Principles of operation of different types of valves.

What is the primary purpose of a pipeline block valve?

1. To isolate the pipeline in sections to limit leaks and for maintenance.
2. To control pressure in the pipeline.
3. To regulate flow in the pipeline.
4. To limit backflow through pipeline compressors.

What are the main components of a valve?

1. Body, impeller shaft, guide vanes.
2. Body, stem, seats, seals, actuator.
3. Nozzle, baffle, sump, elements.
4. Head, piston camshaft, block.

What is the purpose of a limit switch?

1. To open the valve.
2. To close the valve.
3. To limit the movement of the valve stem.
4. All of these.

What type of valve has a flat plate that moves up and down?

1. A gate valve.
2. A ball valve.
3. A plug valve.
4. A check valve.

What type of valve has a sphere with a cylindrical hole drilled through it?

1. A gate valve.
2. A ball valve.
3. A plug valve.
4. A check valve.

What is a "double block & bleed" feature?

1. An isolation valve configuration used for meter runs.
2. A configuration of gate valves used to isolate compressors.
3. A way to block in a pipeline section for maintenance.
4. A way to test a valve for seal integrity.

K60. Principles of operation of different types of valve actuators.

What are the two types of electric valve operators?

1. Motor & Solenoid.
2. Motor & Hydraulic.
3. Pneumatic & Hydraulic.
4. Hydraulic & Solenoid.

What type of valve actuator is typically used for on/off valve control?

1. Electric motor.
2. Electric solenoid.
3. Hydraulic.
4. Pneumatic.

What are the two types of switches used to control electric actuators?

1. Torque & Overload.
2. Torque & Power.
3. Limit & Torque.
4. Limit & Power.

What component of a motor-operated actuator limits the amount of twisting force applied to the valve stem?

1. Torque switch.
2. Limit switch.
3. Hand-wheel.
4. Spring.

There is no intermediate positioning of valves controlled by solenoid actuators ie. the valve is either open or closed.

1. True.
2. False.

Limit switches are set to cut off power to the actuator at these valve positions.

1. Fully open & Partially closed.
2. Partially open & Partially closed.
3. Partially open & Fully closed.
4. Fully open & Fully closed.

K62. Principles of operation of compressors

GENERAL QUESTIONS

Friction in a pipeline causes the pressure of flowing gas to _____.

1. fluctuate
2. decrease
3. increase
4. remain steady

What is the process called that increases the pressure of gas in a pipeline?

1. compression
2. filtration
3. regulation
4. cooling

Compressing gas to increase pressure in a pipeline also does what?

1. reduces throughput
2. improves quality of gas
3. heats the gas
4. increases water content of gas

Pressure is increased at compressor stations along the pipeline to compensate for what?

1. friction losses
2. heat losses
3. gas quality changes
4. gas cooling

What do you call the ratio of a compressor's discharge to suction pressure?

1. Isothermal ratio
2. Adiabatic ratio
3. Polytropic ratio
4. Compression ratio

CENTRIFUGAL COMPRESSOR QUESTIONS

What do you call the condition where there is too low a flow through a centrifugal compressor?

1. Brake horsepower
2. ESD
3. Surge
4. Compression ratio

How does the control system change the throughput of a centrifugal compressor?

1. By changing the cylinder sizes
2. By changing the impeller size
3. By changing the gas temperature
4. By changing the impeller speed

How does a centrifugal compressor add energy to the gas?

1. By reducing the gas temperature
2. By reducing the gas volume
3. By increasing the gas velocity
4. No energy is added

RECIPROCATING COMPRESSOR QUESTIONS

What type of compressor traps gas in a cylinder and raises the pressure by reducing the gas volume?

1. centrifugal
2. reciprocating
3. axial
4. dynamic

How is gas compressed in a reciprocating compressor?

1. pistons travel back and forth in cylinders
2. rotating blades force gas into smaller volume
3. high speed impellers add energy to gas

INTERNAL COMBUSTION ENGINES

In an internal combustion engine, when is gas ignited?

1. at the start of the air compression stroke
2. during the air & fuel intake stroke
3. at the end of the power stroke
4. at the start of the power stroke

In a four stroke internal combustion engine, what are the four strokes called?

1. Suction, Fuel, Combustion, Discharge
2. Intake, Compression, Power, Exhaust
3. Air Compressor, Combustor, Power Turbine, Gas Compressor
4. Stator, Rotor, Shaft, Bearing

Controlling and Monitoring Gas Pressures and Flows

K64 Controller Specific System Knowledge

General Questions:

The most significant variable in the calculation of linepack is:

1. Gas Temperature
2. Gas Pressure
3. Specific Gravity
4. BTU value

KPC Questions

How many compressor units are at each Pawnee, Beaumont & Ottawa Stations?

1. 4,3, & 4
2. 3, 4, & 3
3. 4, 4, & 4
4. 3, 3, & 4

Which stations inject odorant?

1. Ottawa
2. Beaumont & Paola
3. Pawnee
4. Master Gas & Paola

Anadarko Questions

What is different about NGPL-Becham #1 compared to other stations?

1. It is a captive system not on the main line.
2. It is connected to El Paso.
3. It is connected to Transok.
4. Gas Control can set flow & pressure there.

Mainline pressure at ANR is 825 psi and 800 psig at Transok. If Mainline pressure at PEPL is below 750 psig and dropping, that could indicate a mainline leak.

1. True
2. False

Midla Questions

If the pressure on the Low Pressure System is approaching the MAOP, and you are not taking gas at Transco or the Spillover, what should you do?

1. Turn on Low Pressure to Georgia Pacific.
2. Ask Crown Vantage to take more gas from the Low Pressure System.
3. Shut down the Desiard compressor.
4. All of these.

What is the MAOP of the Mainline and Customer Lateral at GSU-Domestic #1?

1. 163 psi & 150 psi
2. 226 psi & 150 psi
3. 800 psi & 150 psi
4. 163 psi & 110 psi

MIT Questions

If the pressure on the 10" line is approaching MAOP, what steps can you take to reduce pressure?

1. Use Bullock Lane crossover valve to mix gas from the 10" to the 12" line
2. Raise the pressure setting at TGP – Cornith.
3. Raise the TGP – Barton Pressure
4. All of these.

What is the MAOP at the Bear Creek river crossing (where the spiral-weld pipe is located)?

1. 800 psi

2. 651 psi
3. 450 psi
4. 700 psi

What is the minimum pressure allowed under contract at Decatur?

1. 100 psi
2. 250 psi
3. 350 psi
4. 450 psi

Utos Questions

If the Sabine Plant shut down suddenly, what options do you have to prevent overpressuring the upstream pipeline?

1. Ask Transco if they can take additional gas at the Southwest Lateral
2. Call El Paso to reduce WC 167 pressure
3. Ask Barracuda if they can take additional gas
4. All of these

What is the MAOP of the Utos pipeline?

1. 880 psi
2. 1000 psi
3. 1200 psi
4. 1440 psi

What is the Pipe Size & Length of the Utos offshore system?

1. 30" OD & 42 Miles
2. 42" OD & 30 Miles
3. 42" OD & 300 Miles
4. 30" OD & 30 Miles

East Texas Questions

What is the relief valve pressure setting on the Gilmer Line at the East Texas Mainline interconnect?

1. 800 psi
2. 846 psi
3. 946 psi
4. 1002 psi

What is the minimum suction pressure at Grapeland Station?

1. 500 psi
2. 580 psi
3. 680 psi
4. 770 psi

How often are all Hell Head ESD valves tested?

1. Monthly
2. Quarterly
3. Semi-annually
4. Annually

OQ Knowledge Evaluation Record

Last Name:	First Name:	ID #:
Exam administered and graded by:		Date:

The following knowledge elements were identified as necessary for an individual to be qualified for one or more covered tasks.

Knowledge of:

K1. Properties of natural gas

(True/False) Natural gas is toxic.

1. True
2. **False**

Why is odorant added to natural gas?

1. To make it burn better.
2. To give it cleaner exhaust
3. **To give the gas a distinctive odor**
4. To make the gas smell better.

Is natural gas heavier or lighter than air?

1. **Lighter than air**
2. Heavier than air
3. Same as air

Natural gas is flammable when mixed with air between which two approximate concentrations?

1. 90% to 100% gas in air
2. **5% to 15% gas in air**
3. 10% to 20% gas in air
4. 1% to 5% gas in air

Natural gas can cause asphyxiation when:

1. Natural gas reduces the blood's ability to absorb oxygen
2. Natural gas reacts with air to form a toxic gas
3. **Natural gas displaces air and reduces the oxygen concentration**
4. Natural gas cannot cause asphyxiation under any circumstances

K1.A. Properties of LPG

(True/False) LPG will liquefy readily under pressure at normal temperatures?

- a. **True**

b. False

(True/False) LPG stands for liquefied petroleum gas?

1. **True**
2. False

LPG is comprised of various mixtures of?

1. **Liquefied butane and propane**
2. Crude oil and water
3. Gasoline and kerosene
4. Diesel and gasoline

Is LPG vapor heavier or lighter than air?

1. Lighter than air
2. **Heavier than air**
3. Same as air

LPG boils between what approximate temperatures?

1. 0 deg. F and 32 deg. F.
2. **31 deg. F and -43 deg. F.**
3. 100 deg. F. and 112 deg. F.
4. 125 deg. F. and 135 deg. F.

LPG vapors can cause asphyxiation when:

1. LPG reduces the blood's ability to absorb oxygen.
2. LPG reacts with air to form a toxic gas.
3. **LPG displaces air and reduces the oxygen concentration.**
4. LPG cannot cause asphyxiation under any circumstances.

K2. & K2.A. Ignition sources

Which of the following are potential sources of ignition? (Check all that apply)

1. **Smoking**
2. **Cigarette lighters and matches**
3. **Electric tools**
4. Air-driven tools with non-sparking attachments
5. **Cellular telephones**
6. **Welding igniters**
7. **Motor vehicle ignitions**
8. Intrinsically-safe flashlights
9. Intrinsically-safe electrical switches
10. **Household electrical switches**
11. **Any electrical spark**

What is the best way to prevent motorized equipment from coming in contact with an escaping gas/LPG cloud?

1. Keep equipment completely covered up.
2. Operate the equipment downwind from the job site.
3. Keep equipment engines running
4. **Operate the equipment upwind from the job site.**

How does a bond wire eliminate arcing when a metal pipe is cut or separated?

1. It keeps the pipe together until the current is shut off.
2. It grounds the pipe to the earth.
3. **It provides a bypass for current to flow across the gap through a conductor**
4. It reduces the voltage

What must you do before welding, cutting or using non-explosion-proof tools in an area that may contain a flammable gas/LPG mixture?

1. Locate all pipe and underground facilities within the right of way
2. Make sure all gas in area is shut off
3. Position a dry chemical fire extinguisher 150 feet from the work area.
4. **Check the area for gas with a Combustible Gas Indicator. (C.G.I.)**

Prior to venting gas/LPG to the atmosphere which of the following should be done?
(Check all that apply)

1. **Remove potential ignition sources from the area**
2. Place vehicles and personnel downwind of the venting
3. **Provide a fire extinguisher**
4. Ignite the venting gas to prevent a gas cloud from forming

K3. Cathodic protection criteria

Which of the following could be an acceptable pipe-to-soil potential?

1. **negative 0.99 volts**
2. 0.95 volts
3. 0.87 ohms
4. negative 0.80 volts

K9. Causes of atmospheric corrosion

(True/False) On gas facilities, atmospheric corrosion can occur anywhere unprotected metal is exposed to air, even in belowground vaults.

1. **True**
2. False

What causes atmospheric corrosion?

1. **A chemical reaction between the pipe and its surrounding elements.**
2. Weather conditions that cause a magnetic field around the pipe.
3. Areas of stress that deform the surface of the pipe.
4. Exposure to sunlight

How does pipe coating help stop atmospheric corrosion?

1. It reacts with corroded metal to stop spreading.
2. It reacts with the pipe to make it corrosion proof.
3. **Is stops contact between the pipe and the electrolyte.**
4. It confines corrosion to small-localized areas.

K10. Bolted, flanged and unbolted insulated joints

What is the purpose of an insulated joint? (circle all that apply)

1. To prevent heat from transferring across the joint
2. **To prevent electrical flow across the joint**
3. To electrically isolate cathodically protected pipe sections from other pipe sections
4. All of the above

Which of the following must be avoided in a properly installed insulated joint

1. **Metal-to-metal contact across the joint**
2. Insulation separating flanged ends.
3. Insulation of bolts
4. Gasket between flanges

K11. Material properties and installation of insulated bolt sleeves and washers.

Any type of gasket material can be used in an insulated joint

1. True
2. **False**

An important property of gasket material for insulated joints is

1. Resistance to chemicals
2. Ability to pass the flow of electrical current
3. **Ability to block the flow of electrical current**
4. Ability to block the transfer of heat

K12. Causes of corrosion

What causes dissimilar metal corrosion?

1. Two metals that expand and contract at different rates
2. **Two metals in contact that have different electrical potential**
3. Two different metals that are in contact with natural gas
4. Two different metals that share the same cathode

Galvanic corrosion occurs where:

1. Electrons flow from the soil onto the pipe
2. **Electrons flow from the pipe to the soil**
3. Pipe is at high pressure and temperature

4. Pipeline pressures rise and fall frequently

K14. CP anodes and anode systems.

Which of the following substances can be used to apply cathodic protection to steel pipe.
(check all that apply)

1. Zinc
2. Magnesium
3. Copper
4. Aluminum

To control corrosion the anode must be electrically insulated from the pipe

1. True
2. False

K15. CP rectifiers and rectifier systems.

Rectifiers convert

1. DC to AC current
2. AC to DC current
3. 3 phase to single phase AC current
4. 60 Hz to 120 Hz AC current

Which rectifier lead should be connected to the pipe?

1. Positive
2. Negative

K16. Causes of internal corrosion

Which of the following can cause internal corrosion (check all that apply):

1. Water accumulating in low spots inside the pipeline
2. High levels of hydrogen sulfide and water in the gas
3. Low gas pressure
4. Carbon dioxide and water in the gas
5. Gas that is dry

K18. ONE CALL system notification procedures.

Other than emergencies, notification must be made to ONE-CALL Agencies at least _____ before the start of excavation activity.

1. 1 day
2. 2 days
3. 3 days
4. 1 week

Once marked, excavation can begin anytime in the next month without requiring a relocate and mark.

1. True
2. False

K21. MAOP

MAOP stands for:

1. Maximum Active Original Pressure
2. Minimum Active Original Pressure
3. **Maximum Allowable Operating Pressure**
4. Minimum Allowable Operating Pressure

K28. Natural gas migration.

Which of the following conditions can cause gas to migrate underground rather than coming up directly above a leak? (check all that apply)

1. **Pavement over the pipeline**
2. **Frozen ground above the pipeline**
3. Air temperatures above 90 degrees F
4. Wind over 15 miles per hour

True or false, dead vegetation is one indication of a potential gas leak

1. **True**
2. False

K28.A. LPG vapor migration.

A visible ice ball on LPG piping or on the ground surface is a good indication of an LPG leak?

1. **True**
2. False

LPG vapors tend to stay close to the ground because they are heavier than air?

1. **True**
2. False

K31. Purging practices and safety

What is the primary reason for following proper procedures when purging a line?

1. To clear the line of debris before you put it in service
2. **To keep gas and air from mixing in the same line**
3. So condensation doesn't result in corrosion
4. To ensure there are no leaks on the line

What would you use to test for gas in the purge discharge?

1. A match
2. **A combustible gas instrument**
3. An flame ionization unit
4. As odorometer

When purging air from the pipeline using gas, what concentration of gas in air at the outlet indicates purging is complete?

1. 100% gas
2. Greater than 15% gas
3. **Less than 5% gas**
4. Between 5 and 15% gas
5. 0% gas

K34.A. Company standards and DOT requirements for proper depth and pipeline clearances from other structures.

Under Part 195 CFR, what is the minimal burial depth of a liquid line?

1. 5 feet
2. 4 feet
3. 3 feet
4. **30 inches**

Under Part 195 CFR, it is not necessary to maintain a list of critical bond locations?

1. True
2. **False**

K36. Procedure for backfilling the trench, such as backfill materials, padding and compaction

When backfilling a trench after maintenance any rocks found should be placed under the pipe to provide support.

1. True
2. **False**

K37. Pipeline coatings

The primary purpose of pipe coating is

1. To make the pipe blend in with its background
2. To make the pipe smooth for easier installation
3. **To electrically insulate the pipe from the surrounding soil**
4. All of the above

Gaps in pipe coating are to be avoided because

1. **Corrosion can occur at these locations**
2. It gives the pipe a poor appearance
3. Coating gaps increase the friction on the pipe

4. All of the above

K39. Safety issues involved in blowing gas (Control of ignition sources, blowing gas near structures, electric power facilities, etc.)

When venting gas from the pipeline, care must be taken to ensure

1. No sources of ignition are nearby
2. The gas will not enter any buildings
3. The gas will not be vented onto electrical power facilities
4. All of the above

K39.A. Safety issues involved in blowing LPG vapors (Control of ignition sources, blowing vapors near structures, electric power facilities, etc.)

When venting LPG vapors it is a good safety practice to erect a stand pipe from the vent valve to elevate the escaping vapors to assist in dissipation?

1. True
2. False

When venting LPG from the pipeline, care must be taken to ensure:

1. No sources of ignition are nearby
2. The vapors will not enter any buildings
3. The vapors will not be vented onto electrical power facilities
4. All the above

K40. DOT pressure test requirements (49 CFR Part 192 – Subpart J)

For steel pipelines operating at a hoop stress of 30% or more of SMYS, the hydrostatic test pressure in a strength test must be maintained for a minimum of _____.

1. 1 hr.
2. 4 hrs.
3. 8 hrs.
4. 24 hrs.

Records of all pressure tests must be retained for the useful life of the pipeline and must contain _____.

1. Test pressure
2. Test Duration
3. Elevation variations
4. All of these

The pipeline operator must keep all persons not working on a pressure test outside of the test area whenever the hoop stress of the pipeline will exceed _____ of SMYS.

1. 30%
2. 50%
3. 100%

4. 125%

In a Class 1 or Class 2 location, each compressor, regulator and meter station must be tested to at least _____ location test requirements.

1. Class 1
2. Class 2
3. **Class 3**
4. Class 4

What test medium is used for a pressure test of a 2-mile segment of the mainline?

1. Air
2. Nitrogen
3. Natural Gas
4. **Water**

K40.A. DOT pressure test requirements (49 CFR Part 195)

Records of all hydrostatic pressure tests must be maintained for:

1. 5 years
2. 10 years
3. **The useful life of the pipeline**
4. 50 years

What factors determine the required test pressure? (Circle all that apply)

1. **The materials of construction**
2. **The MAOP of the pipeline**
3. The weather
4. The intended product

The hydrostatic test pressure shall be maintained for what duration for the pipeline?

1. 2 hours
2. 3 hours
3. 4 hours
4. **8 hours**

K41. Watering and dewatering pipeline system safely, notifying local agencies, and all environmental requirements for water disposal.

When a pressure test is complete the water should be drained into the nearest lake or stream – no permits or notifications are required.

1. True
2. **False**

K43. Regulator operation

What can happen to the regulator valve seat to prevent proper closure?

1. Erosion of the seat.
2. Hydrate formation.
3. Dirt or solids on seat.
4. **All of these.**

What operating conditions can produce hydrates in a regulator?

1. Low pressure drops & high gas temperatures.
2. Low pressure drops & low gas temperatures.
3. **High pressure drops & low gas temperatures.**
4. High pressure drops & high gas temperatures.

What could cause a regulator to provide poor downstream pressure control?

1. Partial blockage of the control tubing (dirt or liquids).
2. Sudden changes in flow rate.
3. Inlet pressure variations.
4. **All of these.**

K44. Overpressure protection device operation

Overpressure protection refers to:

1. Adding extra pipe wall thickness in populated areas
2. High pressure alarms in the control room
3. Depth of cover over the pipeline
4. **Relief valves, monitor regulators or pressure switches installed on the pipeline**

Under 49 CFR Part 192.201 of DOT Pipeline Regulations, what is the highest allowed set point for overpressure protection?

1. **110% of MAOP**
2. 100% of MAOP
3. 120% of MAOP
4. No limit

Who is protected by pipeline overpressure control devices?

1. The Public
2. Pipeline Employees
3. Contractors
4. **All of these**

Under DOT 192.739 Regulations, how often must pipeline overpressure protection equipment be tested?

1. Every 6 months
2. **Once per year**
3. Every 18 months
4. Every 2 years

K44.A. Overpressure protection device operation (195)

Overpressure protection refers to:

1. Adding extra pipe wall thickness in populated areas
2. High pressure alarms in the control room
3. Depth of cover over the pipeline
4. **Relief valves, monitor regulators or pressure switches installed on the pipeline**

Under 49 CFR Part 195 of DOT Pipeline Regulations, how often must overpressure protection devices be tested in LPG service?

1. Every 6 months
2. Once per year
3. Every 18 months
4. **2 times per year**

What is a major cause of overpressure in a liquid pipeline?

1. Too big a pump
2. To big a impeller
3. Leaking valves
4. **Thermal expansion of the liquid when bottled up in short sections of pipeline or valve bodies.**

K45. Telemetry equipment

What are the most common types of communication systems used for pipeline SCADA systems?

1. Serial, Sequential, Bus-based
2. **Telephone Leased Lines, Microwave, Optical Fiber, Satellite**
3. Radio, Cell Phone, Satellite
4. EPROM, Flash PROM, UPS

What component of a SCADA system gathers data from field instruments and sends it to the Host Computer in the Control Room?

1. PLC
2. Flow Computer
3. **RTU**
4. UPS

An RTU is made up of what components?

1. **Battery (UPS), Processor (CPU), I/O Modules, Communication Link**
2. Man-Machine Interface (MMI), Alarm Monitoring, Report Generation
3. UNIX Hardware, Modbus Software, Stoner Network
4. Flow Computer, Chromatograph, Meter, Gravimeter

What is the communication function of the Host Computer in a SCADA system?

1. Assume control of compressor stations during a communications failure.
2. Provide leak detection for the pipeline system.
3. **Coordinate the communication between several RTU's and the Control Room.**
4. All of these.

K46.A. DOT overpressure protection requirements

Under 49 CFR Part 195, what is the highest allowed set point for an overpressure protection device?

1. **110% MAOP**
2. 100% MAOP
3. 120% MAOP
4. No limit

Who is protected by overpressure protection devices?

1. The public
2. Pipeline employees
3. Contractors
4. **All the above**

K49. DOT odorization requirements

When natural gas is odorized the odorant concentration must be:

5. Enough so that the smell is detectable at 100 feet from the pipeline
6. **Enough so that the smell is detectable at 20 percent or less of the lower flammable limit**
7. 0.1% odorant in gas
8. 1.0% odorant in gas

Periodic mainline odorant level "sniff" tests at the extremities of the pipeline must be conducted at what minimum frequency? [Note: This should be modified to match local operating procedures]

5. daily
6. weekly
7. monthly
8. annually

K50. DOT and company requirements for abandonment.

Any onshore pipeline being abandoned must be (circle all that apply)

1. **Purged of gas**
2. **Disconnected from all sources of gas**
3. Filled with water or inert material
4. Sealed at the ends

Any liquids found in a pipeline should be:

1. Drained onto the right-of-way
2. **Collected and disposed of off-site**
3. Tasted
4. Left in the pipeline

K55. Pipeline marking requirements

Pipeline markers are required at (circle all that apply)

1. **Railroad crossings**
2. **Road crossings**
3. River and stream crossings
4. Locations crossing other buried utilities

Other than in densely populated areas, lettering on pipeline markers must be at least

1. ½ inch high
2. **1 inch high**
3. 2 inches high
4. 6 inches high

Markers must include the name of the pipeline operator

1. **True**
2. False

Markers must include a telephone number where the operator can be reached only during normal business hours

1. True
2. **False**

K56. DOT 49CFR192 class location criteria

What is the width the area along a pipeline that is defined as a "class location unit"?

1. 220 yards wide (110 yards on either side of the pipeline)
2. **440 yards wide (220 yards on either side of the pipeline)**
3. 880 yards wide (440 yards on either side of the pipeline)
4. 1 mile wide (1/2 mile on either side of the pipeline)

Each separate dwelling unit in a multiple unit building is counted as a separate building for Class Location purposes.

1. **True**
2. False

A Class 1 Location unit has how many dwellings?

1. More than 10 but fewer than 46
2. **10 or fewer**
3. 46 or more

4. Several multi-story buildings

A Class 2 Location unit has how many dwellings?

1. **More than 10 but fewer than 46**
2. 10 or fewer
3. 46 or more
4. Several multi-story buildings

A Class 3 Location unit has how many dwellings?

1. More than 10 but fewer than 46
2. 10 or fewer
3. **46 or more**
4. Several multi-story buildings

A Class 4 Location unit has how many dwellings?

1. More than 10 but fewer than 46
2. 10 or fewer
3. 46 or more
4. **Several multi-story buildings**

K58. Gas leak investigation and make safe procedures.[Needs to be customized for each pipeline]

When approaching the site of a suspected leak, gas readings should be taken

1. **Continuously while locating the party who reported the leak**
2. Continuously after the calling party identifies the suspected leak
3. Downwind at 10 foot intervals
4. On a 50 foot grid pattern

The area should be evacuated if

1. The gas smell is intense
2. A gas reading of 1% or more is detected near a structure
3. A gas reading of 2% or more is detected in an open area
4. **All of the above**

In addition to evacuating the area, the responder should (circle all that apply)

1. **Contact local emergency response**
2. **Create an exclusion zone around the leak**
3. Allow local news media inside the exclusion zone
4. **Eliminate sources of ignition**

K59. Principles of operation of different types of valves.

What is the primary purpose of a pipeline block valve?

1. **To isolate the pipeline in sections to limit leaks and for maintenance.**
2. To control pressure in the pipeline.

3. To regulate flow in the pipeline.
4. To limit backflow through pipeline compressors.

What are the main components of a valve?

1. Body, impeller shaft, guide vanes.
2. **Body, stem, seats, seals, actuator.**
3. Nozzle, baffle, sump, elements.
4. Head, piston camshaft, block.

What is the purpose of a limit switch?

1. To open the valve.
2. To close the valve.
3. **To limit the movement of the valve stem.**
4. All of these.

What type of valve has a flat plate that moves up and down?

1. **A gate valve.**
2. A ball valve.
3. A plug valve.
4. A check valve.

What type of valve has a sphere with a cylindrical hole drilled through it?

1. A gate valve.
2. **A ball valve.**
3. A plug valve.
4. A check valve.

What is a "double block & bleed" feature?

1. An isolation valve configuration used for meter runs.
2. A configuration of gate valves used to isolate compressors.
3. A way to block in a pipeline section for maintenance.
4. **A way to test a valve for seal integrity.**

K60. Principles of operation of different types of valve actuators.

What are the two types of electric valve operators?

1. **Motor & Solenoid.**
2. Motor & Hydraulic.
3. Pneumatic & Hydraulic.
4. Hydraulic & Solenoid.

What type of valve actuator is typically used for on/off valve control?

1. Electric motor.
2. **Electric solenoid.**
3. Hydraulic.
4. Pneumatic.

What are the two types of switches used to control electric actuators?

1. Torque & Overload.
2. **Torque & Power.**
3. Limit & Torque.
4. Limit & Power.

What component of a motor-operated actuator limits the amount of twisting force applied to the valve stem?

1. **Torque switch.**
2. Limit switch.
3. Hand-wheel.
4. Spring.

There is no intermediate positioning of valves controlled by solenoid actuators ie. the valve is either open or closed.

1. **True.**
2. False.

Limit switches are set to cut off power to the actuator at these valve positions.

1. Fully open & Partially closed.
2. Partially open & Partially closed.
3. Partially open & Fully closed.
4. **Fully open & Fully closed.**

K62. Principles of operation of compressors

GENERAL QUESTIONS

Friction in a pipeline causes the pressure of flowing gas to _____.

1. fluctuate
2. **decrease**
3. increase
4. remain steady

What is the process called that increases the pressure of gas in a pipeline?

1. **compression**
2. filtration
3. regulation
4. cooling

Compressing gas to increase pressure in a pipeline also does what?

1. reduces throughput
2. improves quality of gas
3. **heats the gas**
4. increases water content of gas

Pressure is increased at compressor stations along the pipeline to compensate for what?

1. **friction losses**
2. heat losses
3. gas quality changes
4. gas cooling

What do you call the ratio of a compressor's discharge to suction pressure?

1. Isothermal ratio
2. Adiabatic ratio
3. Polytropic ratio
4. **Compression ratio**

CENTRIFUGAL COMPRESSOR QUESTIONS

What do you call the condition where there is too low a flow through a centrifugal compressor?

1. Brake horsepower
2. ESD
3. **Surge**
4. Compression ratio

How does the control system change the throughput of a centrifugal compressor?

1. By changing the cylinder sizes
2. By changing the impeller size
3. By changing the gas temperature
4. **By changing the impeller speed**

How does a centrifugal compressor add energy to the gas?

1. By reducing the gas temperature
2. By reducing the gas volume
3. **By increasing the gas velocity**
4. No energy is added

RECIPROCATING COMPRESSOR QUESTIONS

What type of compressor traps gas in a cylinder and raises the pressure by reducing the gas volume?

1. centrifugal
2. **reciprocating**
3. axial
4. dynamic

How is gas compressed in a reciprocating compressor?

1. **pistons travel back and forth in cylinders**

2. compressor gas temperature
3. inlet air pressure
4. all of these

INTERNAL COMBUSTION ENGINES

In an internal combustion engine, when is gas ignited?

1. at the start of the air compression stroke
2. during the air & fuel intake stroke
3. at the end of the power stroke
4. **at the start of the power stroke**

In a four stroke internal combustion engine, what are the four strokes called?

1. Suction, Fuel, Combustion, Discharge
2. **Intake, Compression, Power, Exhaust**
3. Air Compressor, Combustor, Power Turbine, Gas Compressor
4. Stator, Rotor, Shaft, Bearing

CONTROLLING AND MONITORING GAS PRESSURES AND FLOWS

K64 Controller Specific System Knowledge

General Questions:

The most significant variable in the calculation of linepack is:

1. Gas Temperature
2. **Gas Pressure**
3. Specific Gravity
4. BTU value

KPC Questions

How many compressor units are at each Pawnee, Beaumont & Ottawa Stations?

1. **4,3, & 4**
2. 3, 4, & 3
3. 4, 4, & 4
4. 3, 3, & 4

Which stations inject odorant?

1. Ottawa

2. Beaumont & Paola
3. Pawnee
4. Master Gas & Paola

Anadarko Questions

What is different about NGPL-Becham #1 compared to other stations?

1. It is a captive system not on the main line.
2. It is connected to El Paso.
3. It is connected to Transok.
4. Gas Control can set flow & pressure there.

Mainline pressure at ANR is 825 psi and 800 psig at Transok. If Mainline pressure at PEPL is below 750 psig and dropping, that could indicate a mainline leak.

1. True
2. False

Midla Questions

If the pressure on the Low Pressure System is approaching the MAOP, and you are not taking gas at Transco or the Spillover, what should you do?

1. Turn on Low Pressure to Georgia Pacific.
2. Ask Crown Vantage to take more gas from the Low Pressure System.
3. Shut down the Desiard compressor.
4. All of these.

What is the MAOP of the Mainline and Customer Lateral at GSU-Domestic #1?

1. 163 psi & 150 psi
2. 226 psi & 150 psi
3. 800 psi & 150 psi
4. 163 psi & 110 psi

MIT Questions

If the pressure on the 10" line is approaching MAOP, what steps can you take to reduce pressure?

1. Use Bullock Lane crossover valve o mix gas from the 10" to the 12" line
2. Raise the pressure setting at TGP – Cornith.
3. Raise the TGP – Barton Pressure
4. All of these.

What is the MAOP at the Bear Creek river crossing (where the spiral-weld pipe is located)?

1. 800 psi
2. **651 psi**
3. 450 psi
4. 700 psi

What is the minimum pressure allowed under contract at Decatur?

1. 100 psi
2. 250 psi
3. **350 psi**
4. 450 psi

Utos Questions

If the Sabine Plant shut down suddenly, what options do you have to prevent overpressuring the upstream pipeline?

1. Ask Transco if they can take additional gas at the Southwest Lateral
2. Call El Paso to reduce WC 167 pressure
3. Ask Barracuda if they can take additional gas
4. **All of these**

What is the MAOP of the Utos pipeline?

1. 880 psi
2. 1000 psi
3. **1200 psi**
4. 1440 psi

What is the Pipe Size & Length of the Utos offshore system?

1. 30" OD & 42 Miles
2. **42" OD & 30 Miles**
3. 42" OD & 300 Miles
4. 30" OD & 30 Miles

East Texas Questions

What is the relief valve pressure setting on the Gilmer Line at the East Texas Mainline interconnect?

1. 800 psi
2. **846 psi**

3. **946 psi**
4. 1002 psi

What is the minimum suction pressure at Grapeland Station?

1. 500 psi
2. **580 psi**
3. 680 psi
4. 770 psi

How often are all Hell Head ESD valves tested?

1. **Monthly**
2. Quarterly
3. Semi-annually
4. Annually

OO Abnormal Operating Condition Evaluation Record

Last Name:	First Name:	ID #:
Exam administered and graded by:		Date:

The following questions measure the ability to recognize and react to the listed abnormal operating conditions that were identified as necessary for an individual to be qualified for one or more covered tasks.

Abnormal Operating Conditions

AOC1. Metal loss

Q: How much metal loss can occur on the pipeline before action is required?

Q: What should you do if you discover metal loss exceeding this depth?

AOC2. Unintended movement or abnormal loading of a pipeline

Q: How would you recognize ground movement or other abnormal loading of the pipeline?

Q: What should you do if you discover ground movement or abnormal loading of the pipeline?

AOC3. A leak in a pipeline that constitutes an emergency.

Q: Under what conditions would a leak on the pipeline constitute an emergency?

Q: How would you recognize such a leak?

Q: What should you do if you discover a leak that constitutes an emergency?

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

Q: What types of material defect or physical damage could impair the serviceability of the pipeline?

Q: How would you recognize that any of these conditions exists?

Q: What should you do if you discover a material defect or physical damage that impairs the serviceability of the pipeline?

AOC5. Conditions requiring shutdown or MAOP reduction

Q: What conditions could require shutdown or MAOP reduction?

Q: How would you recognize that conditions requiring shutdown or MAOP reduction exist?

Q: What should you do if you discover conditions requiring shutdown or MAOP reduction?

AOC6. Increase or decrease in flow rate outside normal limits

Q: How would you recognize that flow rates are outside normal limits?

Q: What should you do if you discover flow rates outside normal limits?

AOC7. Unintended closure of valves or shutdown

Q: How would you recognize that a valve has accidentally closed?

Q: What should you do if you discover that a valve has accidentally closed?

AOC8. Low oxygen atmosphere

Q: How would you recognize that there is low oxygen in a work area?

Q: What should you do if you discover low oxygen in any area?

AOC9. Flammable atmosphere

Q: What are the flammability limits of gas in air?

Q: How would you recognize that a flammable atmosphere exists in a work area?

Q: What should you do if you discover a flammable atmosphere in a work area?

AOC10. Fire on a pipeline

Q: How would you recognize that there is a fire on the pipeline?

Q: What should you do if there is a fire on the pipeline?

AOC12. Burn-through/Penetration during welding

Q: When welding on a pipeline carrying gas, how would you recognize that the weld has burned through the pipeline?

Q: What should you do if you burn through while welding on a live gas pipeline?

AOC13. Overpressure (MAOP exceeded by more than 10 percent)

Q: What is the significance of a pipeline's Maximum Allowable Operating Pressure (MAOP)?

Q: What is the MAOP of the pipeline?

Q: How would you recognize that pipeline pressure has exceeded MAOP?

Q: What should you do if you discover that pipeline pressure has exceeded MAOP?

AOC14. Under pressure

Q: Are there minimum pressures that must be maintained at any point on the pipeline?

Q: How would you recognize that any part of the pipeline is below minimum pressure?

Q: What should you do if any part of the pipeline is below minimum pressure?

AOC15. Under odorization

Q: What is the desired odorant level?

Q: How would you recognize that odorant levels are low?

Q: What should you do if you discover that gas is under-odorized?

AOC16. Stray current on pipeline

Q: How would you recognize if there is stray current on the pipeline?

Q: What should you do if there is stray current on the pipeline?

AOC17. Alarms (e.g. control room operators, station operators)

Q: From a safety standpoint, what are the most important alarms?

Q: What do each of these alarms indicate?

Q: What should you do when each of these alarms goes off?

AOC18. Tripping an overpressure protection device

Q: How would you recognize that a relief valve has tripped?

Q: What should you do if you discover a blowing relief valve?

AOC19. Loss of communications/telemetry/SCADA

Q: How would you recognize if all or part of the communication/telemetry/SCADA has gone down?

Q: What should you do if all or part of the communication/telemetry/SCADA has gone down?

AOC20. Low pipe to soil potentials

Q: What is considered a low pipe-to-soil potential?

Q: What should you do if you find a low pipe-to-soil potential?

Abnormal Operating Conditions – Evaluator's copy

The following questions should be asked of the individual being qualified. The suggested "correct" answers are shown, however the evaluator should use his/her knowledge and judgment to assess whether any alternative answer provided by the individual could also be "correct."

This exam can be administered either orally or in writing. If administered orally, the evaluator should write down a brief summary of the individual's responses to each question on the written exam form. The original copy of this exam form should be maintained locally and the results sent to the Director, Health, Environment and Safety.

AOC1. Metal loss

- Q: How much metal loss can occur on the pipeline before action is required?
A: 10%
Q: What should you do if you discover metal loss exceeding 10% of wall thickness?
A: Report it to Tech Services for further assessment

AOC2. Unintended movement or abnormal loading of a pipeline

- Q: How would you recognize ground movement or other abnormal loading of the pipeline?
A: Landslide, subsidence or flood on or adjacent to the right of way
Q: What should you do if you discover ground movement or abnormal loading of the pipeline?
A: Report the condition to Engineering for further assessment.

AOC3. A leak in a pipeline that constitutes an emergency.

- Q: Under what conditions would a leak on the pipeline constitute an emergency?
A: If not immediately corrected it would result in a hazardous situation for personnel, the Public or the pipeline facilities.
Q: How would you recognize such a leak?
A: By odorant smell, a hissing sound or by feeling gas blowing.
Q: What should you do if you discover a leak that constitutes an emergency?
A: Attempt to isolate the piping, evacuate the area and call Gas Control.

AOC4. Material defect or physical damage that impairs the serviceability of a pipeline

- Q: What types of material defect or physical damage could impair the serviceability of the pipeline?
A: Dents, scratches, gouges or surface corrosion.
Q: How would you recognize that any of these conditions exists?
A: By visual inspection.
Q: What should you do if you discover a material defect or physical damage that impairs the serviceability of the pipeline?
A: Advise Tech Services.

AOC5. Conditions requiring shutdown or MAOP reduction

- Q: What conditions could require shutdown or MAOP reduction?
A: A leak, fire, overpressure condition or physical damage to the pipeline.
Q: How would you recognize that conditions requiring shutdown or MAOP reduction exist?
A: Leak – Smell, Noise, Gas alarm. Fire – Visual observation, Fire alarm
Overpressure – Hear relief valve, High pressure alarm
Physical Damage – Visual observation
Q: What should you do if you discover conditions requiring shutdown or MAOP reduction?
A: Trigger ESD at a Compressor Station.
Call Gas Control.

AOC6. Increase or decrease in flow rate outside normal limits

- Q: How would you recognize that flow rates are outside normal limits?

- A. High flow alarms or meter readings above flow limits.
 Q: What should you do if you discover flow rates outside normal limits?
 A. Notify Gas Control

AOC7. Unintended closure of valves or shutdown

- Q: How would you recognize that a valve has accidentally closed?
 A. Notice pressure drop across valve.
 Observe valve indicator is closed.
 Q: What should you do if you discover that a valve has accidentally closed?
 A. Notify Gas Control.
 Manually reopen valve (if sure that it is safe to do).

AOC8. Low oxygen atmosphere

- Q: How would you recognize that there is low oxygen in a work area?
 A: Oxygen sensor reading of 19.5% oxygen or less.
 Q: What should you do if you discover low oxygen in any area?
 A: Ventilate the area or wear a supplied air breathing apparatus when working in the area.

AOC9. Flammable atmosphere

- Q: What are the flammability limits of gas in air?
 A: LFL = 4-5%; UFL = 14-15%
 Q: How would you recognize that a flammable atmosphere exists in a work area?
 A: Combustible Gas Indicator reads 100% of LFL or higher, or 4% or higher on the gas scale
 Q: What should you do if you discover a flammable atmosphere in a work area?
 A: Ventilate the area to lower the % gas below the LFL or take precautions to prevent accidental ignition while working in the area.

AOC10. Fire on a pipeline

- Q: How would you recognize that there is a fire on the pipeline?
 A: Visual indication.
 Q: What should you do if there is a fire on the pipeline?
 A: Call Gas Control. If the fire is small, extinguish it with a portable extinguisher

AOC11. Inoperable/Failure of a pipeline component inspected, operated or maintained in the course of a covered task [NOTE – These will be addressed on the individual ability evaluation checklists]

- Q: How would you recognize that a (insert component) has malfunctioned while you are (task being performed)?
 Q: What should you do if you discover that the ____ has malfunctioned?

Examples of tasks and components

Task	Potentially Failed Component
Measuring pipe-to-soil potential	Test station
Electrically checking for proper performance reverse current switches, diodes, and interference bonds	Reverse current switches, diodes, and interference bonds
Testing electrical isolation couplings	Electrical isolation couplings
Ensure operation of a rectifier	Rectifier
Inspect and test pressure regulator station	Regulator, pressure gauge, telemetry
Testing overpressure protection	Relief valve
Field interpretation of pressure recording charts	Pressure gauge, recording chart
Change/Repair a chart recorder at a pressure limiting station	Pressure gauge, recording chart
Operating an odorizer	Odorizer
Inspect and maintain valves	Valve, valve actuator, telemetry

Maintain/operate a pipeline compressor station	Compressor, telemetry, driver, and ancillary equipment
Test and maintain emergency shutdown systems	Emergency shutdown systems and ancillary equipment
Maintaining gas detection systems and gas alarms in compressor stations	Gas detectors and alarms

AOC12. Burn-through/Penetration during welding

Q: When welding on a pipeline carrying gas, how would you recognize that the weld has burned through the pipeline?

A: Visual indication.

Q: What should you do if you burn through while welding on a live gas pipeline?

A: Evacuate the immediate area and call Gas Control.

AOC13. Overpressure (MAOP exceeded by more than 10 percent)

Q: What is the significance of a pipeline's Maximum Allowable Operating Pressure (MAOP)?

A: It is the highest pressure at which the pipeline segment may be safely operated.

Q: What is the MAOP of the pipeline?

A:

Q: How would you recognize that pipeline pressure has exceeded MAOP?

A: Relief valves blowing, pressure alarms, pressure gauges

Q: What should you do if you discover that pipeline pressure has exceeded MAOP?

A: Isolate piping if possible. Call Gas Control.

AOC14. Under pressure

Q: Are there minimum pressures that must be maintained at any point on the pipeline?

A: Yes, at some meter station delivery points.

Q: How would you recognize that any part of the pipeline is below minimum pressure?

A: Low pressure alarm, pressure gauges

Q: What should you do if any part of the pipeline is below minimum pressure?

A: Call Gas Control.

AOC15. Under odorization

Q: What is the desired odorant level?

A: Detectable at 20% LFL

Q: How would you recognize that odorant levels are low?

A: No odor is detected during maintenance activities that should release gas or odorometer readings find odor undetectable at or above 20% LFL

Q: What should you do if you discover that gas is under-odorized?

A: Notify Gas Control.

AOC16. Stray current on pipeline

Q: How would you recognize if there is stray current on the pipeline?

A: Unusually high pipe-to-soil readings

Q: What should you do if there is stray current on the pipeline?

A: Trace the source, if qualified, otherwise notify Technical Services

AOC17. Alarms (e.g. control room operators, station operators)

Q: From a safety standpoint, what are the most important alarms?

A: Site specific

Q: What do each of these alarms indicate?

A: Site specific

Q: What should you do when each of these alarms goes off?

A: Site specific

AOC18. Tripping an overpressure protection device

- Q: How would you recognize that a relief valve has tripped?
A: Loud noise
Q: What should you do if you discover a blowing relief valve?
A: Call Gas Control

AOC19. Loss of communications/telemetry/SCADA

- Q: How would you recognize if all or part of the communication/telemetry/SCADA has gone down?
A: Equipment does not respond to commands, alarms, etc.
Q: What should you do if all or part of the communication/telemetry/SCADA has gone down?
A: Gas Control and local operators coordinate via telephone, radio, etc to locally operate equipment

AOC20. Low pipe to soil potentials

- Q: What is considered a low pipe-to-soil potential?
A: Less than 850 mV.
Q: What should you do if you find a low pipe-to-soil potential?
A: Notify Engineering

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A1. Use the equipment to take pipe-to-soil readings		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Hardware preparation: Selects proper meter, test leads, and reference electrode. Selects proper paperwork and maps to identify structure to be surveyed.		
Item 2: Locate and identify structure: Locates and identifies correct test station, and correct test station terminal to read.		
Item 3: Set-up instrument: Connects test leads and reference electrode to meter with correct polarity. Selects proper meter range Makes a good electrical connection to test station terminal.		
Item 4: Read pipe-to-soil potential: Properly places reference electrode in the soil (proper distance and electrical contact) Correctly reads the voltage		
Item 5: Record the reading(s): Records the pipe-to-soil reading on the company forms with accuracy adhering to company standards.		
Abnormal Operating Conditions (AOC's) (by oral exam if not observed): Understands the possibility of stray current conditions. Recognizes indications that the test station may be broken Recognizes & reacts to indications of shorted casings Recognizes and reacts to indications of failed insulation coupling		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A2. Ability to Repair a PVC Pipeline Using Solvent Cement		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Sat.	Unsat.
Item 1: Hardware preparation: Select proper hand and power tools for preparing the pipeline. Select adequate protective clothing and safety equipment: (e.g. face shield, safety goggles, respirators, dust masks, hearing protection, gloves, etc).	<input type="checkbox"/>	<input type="checkbox"/>
Item 2: Preparation of pipeline: Exposes buried PVC beyond repair area (longitudinally and vertically). Stops gas flow in pipeline to be repaired. Cleanly cuts out the damaged pipeline segment. Cuts and deburrs the remaining pipeline ends squarely. Cleans and dries the remaining pipeline ends using water and cloth.	<input type="checkbox"/>	<input type="checkbox"/>
Item 3: Repairing the pipeline: Applies PVC solvent primer to pipeline ends equal to coupling length, as applicable. Applies PVC solvent cement to pipeline end equal to coupling length. Applies PVC solvent cement to coupling up to stop ring. Presses coupling onto pipe using a 1/8 to 1/4 turn at the coupling " <i>bottom out</i> " position. Holds coupling in position for a 30 second minimum. Adheres to company standards for rough handling time and cement curing time prior to purging with gas.	<input type="checkbox"/>	<input type="checkbox"/>

Notes: Most PVC pipe and solvent cement manufacturers recommend a minimum of 2 minutes for time to rough handling and a minimum of 15 minutes for curing time prior to application of line pressure. Operator procedures for handling/pressure application times should always be used.

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A3. Ability to Fuse & Inspect Plastic Pipe Joints		
Evaluation Location (Circle One): On-the-job Classroom Simulation		Page 1 of 1

This form is to be used to evaluate an individual's skill or ability by observation on-the-job.

Demonstration of abilities

The evaluator must observe the individual perform the following critical steps and indicate in the space provided whether each step was performed correctly. Provide comments on the back of this form for all steps that are judged to be not acceptable.

	Sat.	Unsat.
Item 1: Hardware preparation: Select proper hand and power tools for preparing the pipeline. Select adequate protective clothing and safety equipment: (e.g. face shield, safety goggles, respirators, dust masks, hearing protection, gloves, etc).	<input type="checkbox"/>	<input type="checkbox"/>
Item 2: Preparation of pipeline: Cleanly cuts out the damaged pipeline segment. Cuts and deburrs pipeline ends squarely. Cleans and dries the remaining pipeline ends using water and cloth.	<input type="checkbox"/>	<input type="checkbox"/>
Item 3: Repairing the pipeline: Follows applicable manufactures recommendations for fusion bonding Proper alignment of ends Monitors heat and time specified for adequate bond Allows ample time for weld to cure before disturbing bond Visually inspects weld for possible defects Follows company procedure for backfilling	<input type="checkbox"/>	<input type="checkbox"/>

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A4. Measure pipe wall thickness</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Calibrates the ultrasonic pipe wall thickness meter		
Item 2: Cleans the area to be measures and applies sufficient liquid for solid contact		
Item 3: Makes solid contact and reads the wall thickness		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A5. Ability to Measure Voltage, Current, and Resistance		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Hardware preparation: Select proper test instrument to measure volts, amperes, and ohms. Select proper test lead set to do measurements.		
Item 2: Hardware hook-up: Demonstrate the attachment of the test leads to the meter so that readings can be taken. Demonstrate that proper range setting is selected for the readings being taken.		
Item 3: Take voltage readings with the meter: Demonstrate that the voltmeter is on the correct range. Demonstrate, using a battery, with test leads in contact with the battery posts that a correct voltage can be obtained. Demonstrate that the correct polarity can be obtained when reading the meter.		
Item 4: Take a resistance reading: Demonstrate that the ohmmeter is on the correct range. Demonstrate, by connecting the test leads across a sample the resistor, that the correct ohms are read on the meter.		
Item 5: Take a current reading: Demonstrate that the ammeter is on the correct range. Demonstrate, either by connecting the battery, resistor, and meter in series, or by connecting the resistor across the battery and reading the voltage drop across the resistor and using ohms law that the correct current can be measured.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A6. Ability to Apply Tape Coatings		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Hardware preparation: Selects proper hand and power tools for cleaning the pipeline. Selects sheet plastic to collect old coating in ditch if applicable. Selects proper containers to collect old coating if applicable. Selects adequate protective clothing and safety equipment (e.g. face shield, safety goggles, respirators, dust masks, hearing protection, gloves, etc).		
Item 2: Removal of old coating if applicable: Utilizes plastic sheet to line ditch in work area, if required by company Removes old coating without damaging the pipeline. Utilizes containers to collect old coating if required by company		
Item 3: Cleaning the pipe surface: Cleans the pipeline to the specification applicable to the coating to be applied		
Item 4: Materials selection: Selects tape coating system to apply. Selects tape rolls of proper width for the intended job. Selects primer designated for the tape being used. Selects proper cover tape.		
Item 5: Application of coating system: Applies the primer to the pipeline at the approved coverage rate. Allows time for the primer to "tack". Applies the tape to the pipe without wrinkles, gaps or other deficiencies. Applies tape with proper tension. Applies cover tape to strengthen the tape system (optional).		
Item 6: Inspection of coating system: Inspects the coating system for defects. Repairs any holidays found.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A7. Ability to Apply Mastic Coatings		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Hardware preparation: Selects application tools (e.g. brushes, spray equipment) Selects pipeline heating equipment if required. Selects gauges to check coating thickness if required. Selects proper protective clothing as required. Selects proper safety equipment as required. Selects proper fire extinguisher as required.		
Item 2: Materials selection: Selects mastic coating to be used. Utilizes MSDS to determine precautions. Selects craft paper to protect coating during backfilling operation as recommended by mastic manufacturer.		
Item 3: Pipe preparation: Prepares pipeline including drying the surface and warming the pipe surface during frigid weather. Removes all ignition sources from work area.		
Item 4: Mastic application: Applies mastic to the pipeline and appurtenances at the recommended individual coat thickness. Allows sufficient time for the mastic to cure before applying the next coat. (repeat Item 4 as many times as necessary to build the coating thickness required) Waits the proper curing time prior to backfilling.		
Item 5: Inspection of coating system: Inspects the coating system for defects. Repairs any holidays found.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A8. Ability to Inspect a Rectifier</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Verifies unit location	<input type="checkbox"/>	<input type="checkbox"/>
Item 2: Visually inspects the general condition of the cabinet, components and grounding systems.	<input type="checkbox"/>	<input type="checkbox"/>
Item 3: Checks components and replaces any damaged components	<input type="checkbox"/>	<input type="checkbox"/>
Item 4: Reads rectifier output voltage and current readings using the voltmeter and ammeter	<input type="checkbox"/>	<input type="checkbox"/>
Item 5: Note any changes to the tap settings and the reasons for the change	<input type="checkbox"/>	<input type="checkbox"/>
Item 6: Reads the electrical meter providing power to the rectifier, if applicable	<input type="checkbox"/>	<input type="checkbox"/>
Item 7: Notes any conditions requiring remedial action that cannot be repaired at the time of the inspection	<input type="checkbox"/>	<input type="checkbox"/>
Item 8: Records results on proper forms	<input type="checkbox"/>	<input type="checkbox"/>
AOC11: Can recognize and react to a failed rectifier (by oral exam if not observed)	<input type="checkbox"/>	<input type="checkbox"/>

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A9. Ability to Install Mechanical Split Sleeves</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Properly prepares piping surface prior to mechanical split sleeve installation..	<input type="checkbox"/>	<input type="checkbox"/>
Item 2: Properly install bolted mechanical split sleeve.	<input type="checkbox"/>	<input type="checkbox"/>
Item 3: Properly coats piping, as necessary.	<input type="checkbox"/>	<input type="checkbox"/>

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A10. Ability to Test Coatings for Holidays		
Evaluation Location (Circle One):	On-the-job Classroom or office	Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Hardware preparation: Selects the proper high-voltage test instrument. Selects the proper coil electrodes for the pipe diameter or the brush electrode. Selects the proper "pig tail" or ground lead.		
Item 2: Hardware set-up: Checks that the instrument's battery is fully charged. Checks that the instrument's output voltage is properly set for the coating being tested. Checks that the coil electrode fits snugly around the pipe being tested. Connects the ground lead to the instrument and either the pipe or the earth around the pipeline Checks that the instrument is operating by touching the high-voltage electrode to a known holiday.		
Item 3: Coating inspection procedures. Inspects the pipeline coating by moving the electrode along the pipe at the correct speed. Using the brush electrode, inspects the coating on valves. (optional)		
Item 4: Coating repair of holidays: Repairs any holidays.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A11. Trace the source of interference from adjacent underground metallic structures.		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Hardware preparation: Selects proper electrical test equipment, reference electrodes and test cables. Selects proper rectifier current interrupter(s). Selects proper maps of the area to be surveyed.		
Item 2: Current interruption: Selects of proper current sources to interrupt. Correctly adjusts the rectifiers/current sources before beginning testing. Properly hooks-up of the interrupter(s). Checks that the interruption cycles prevent major depolarization of the protected structures being surveyed.		
Item 3: Potential measurements at interference points: Locates and monitors all test stations affected by interference Places the reference electrode so that interference current can be accurately measured. Obtains readings, noting polarity and shifting or varying values.		
Item 4: Record the readings: Records where the current is being picked up on or discharged from the structure.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A12. Ability to Install Bolt-On Leak Clamps</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Properly prepares piping surface prior to leak clamp sleeve installation.		
Item 2: Properly install bolt-on leak clamp according to manufacturer's procedures.		
Item 3: Properly coats piping, as necessary.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Checklist

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A13. Insert and Remove Coupons</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Coupon retraction Retract coupon according to company and manufacturer procedures.		
Item 2: Close isolation valve Isolate coupon following company procedures.		
Item 3: Package and label coupon Package coupon without exposing it to external contaminates. Document the coupons condition.		
Item 4: Prepare new coupon Prepare the new coupon for installation being careful not to expose it to external contaminates.		
Item 5: Installation of new coupon Install the new coupon according to company and manufacturer procedures.		
Item 6: Open the isolation valve after the coupon holder assembly is properly installed on the valve.		
Item 7: Reinsert the coupon		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:		First Name:	ID #:
Evaluated by:			Date:
A14. Recognize atmospheric corrosion			
Evaluation Location (Circle One): On-the-job Classroom or office			Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Recognizes normal rust (above grade) as surface oxidation		
Item 2: Recognizes local pitting (above grade) as atmospheric corrosion		
Item 3: Recognizes general pitting (above grade) as atmospheric		
Item 4: Records all atmospheric corrosion patrolling inspections		
Item 5: Reports actual or potential atmospheric corrosion to company officials		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A15. Attach wire to pipe with a thermite weld or other method		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Checks for flammable gases		
Item 2: Utilizes proper personal protective equipment (PPE)		
Item 3: Selects the proper location to thermoweld the wire to the pipe		
Item 4: Removes coating and prepares pipe surface and wire prior to the thermoweld		
Item 5: Selects proper thermoweld charge cartridge for type of material		
Item 6: Demonstrates proper thermoweld procedure		
Item 7: Tests thermoweld for strength after cooling		
Item 8: After proper cooling time, wrap thermoweld area using company approved pipe coating repair materials		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A16. Install and test CP anodes and anode systems		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Placement of the anode(s): Correctly places the galvanic anode(s) Properly backfills the hole, including adding water to the soil the backfill to activate the anode, (if required by company procedures)		
Item 2: Repair coating at anode attachment point: Repairs the coating where the anode(s) are connected to the structure.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A17. Ability to Install and Test CP Rectifier Systems</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Rectifier power-up: Checks that the rectifier's output terminals are correctly polarized.		
Item 2: Rectifier D.C. hook-up and adjust output: Secures the anode and pipe cables to the correct rectifier output terminals. Adjusts the rectifier D.C. output for the affected structure. Checks whether an in-line diode is needed to prevent reverse current flow when the rectifier is off-line.		
Item 3: Record the readings: Records output volts and amps on company forms		
Item 4: Recognizes conditions that may indicate stray current conditions.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A18. Read gas system pipeline drawings and maps		
Evaluation Location (Circle One): <u>On-the-job</u> Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
A. Using maps, able to identify:		
a. Direction of flow		
b. Stream crossings		
c. Pipe Outside Diameter (OD) and pipe specifications		
d. Railroad crossings		
e. Highway crossings		
f. Main line valves		
g. Cathodic protection test stations		
h. Milepost		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Checklist

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A19. Locate and Mark Lines		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Pre-use equipment checks Checks battery, cables, clamps, etc. Performs tests per manufacturer's procedures, if applicable		
Item 2: Properly connects the leads to the pipeline		
Item 3: Operates equipment in accordance with manufacturer's procedures Recognizes indications of signal bleed over, ghost conductor and air coupling		
Item 4: Marks location of pipeline using proper color paint, flags, stakes etc. Marks locations where pipelines change direction Checks for differences between marked lines and pipeline maps		
Item 5: Records results of line locating on proper forms		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OO Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A20. Operate and maintain adequate gas system pressures without exceeding MAOP's.		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

SCENARIO: MAOP Reduction

You are the Gas Controller for a Transmission Pipeline. You have received notification that Operations will be performing a 'hot tap' on the pipeline today, just downstream of a Compressor Station. Engineering has advised you that the pipeline pressure must be maintained below 50% of MAOP during the hot tap work. What steps do you take before and during the hot tap job?

	Yes	No
Item 1: From SCADA, determine the line pressure at the hot tap location		
Item 2: If necessary, lower the pressure below 50% of MAOP <ul style="list-style-type: none"> - Shut down an upstream compressor - Ask downstream customers to increase their takee 		
Item 3: Advise Field Operations that tap job can proceed		
Item 4: Record actions in Gas Control Log		
Item 5: Monitor line pressures and adjust if necessary		
Item 6: Keep in contact with Operations to monitor progress of tapping job		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A21. Remotely open and close valves		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
<u>CLOSE MAINLINE VALVE</u>		
Item 1: Go to Pipeline System Map and select correct mainline valve		
Item 2: Click on CLOSED followed by EXECUTE		
Item 3: Monitor Valve Change <ul style="list-style-type: none"> - Valve on screen goes to red (closed) - Differential pressure should develop across valve 		
Item 4: Record valve closure in Gas Control Log		
<u>OPEN MAINLINE VALVE</u>		
Item 1: Go to Pipeline System Map and select correct mainline valve		
Item 2: If necessary, reduce pressure differential across valve		
Item 3: When pressure differential is below 50 psi, Click on OPEN followed by EXECUTE		
Item 4: Monitor Valve Change <ul style="list-style-type: none"> - Valve on screen goes to white or green (open) - Differential pressure should drop to near zero 		
Item 7: Record valve opening in Gas Control Log		

AOC. Equipment Failure

- Q. What do you do if the valve fails to execute your command?

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A22. Remotely start & stop compressors		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Start Compressor		
Item 1: Goes to Pipeline System Map and Clicks on Compressor Station		
Item 2: Selects compressor unit		
Item 3: In Mode Control, Clicks on START followed by EXECUTE		
Item 4: Monitors startup sequence		
Item 5: Records compressor startup in Gas Control Log		
Stop Compressor		
Item 1: Goes to Pipeline System Map and Clicks on Compressor Station		
Item 2: Selects compressor unit		
Item 3: In Mode Control, Clicks on STOP followed by EXECUTE		
Item 4: Monitors stop sequence		
Item 5: Records compressor stop in Gas Control Log		
AOC. Equipment Failure		
- Q. What do you do if compressor fails to execute your command?		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A23. Change the pressure set point remotely.</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Goes to the Pipeline System Map and selects a Meter Station		
Item 2: Clicks on PRESSURE SET POINT		
Item 3: Changes Setpoint Value		
Item 4: Clicks on EXECUTE		
Item 5: Confirms that the Pressure has changed to the new value		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A24. Operate computer based data acquisition and display systems (SCADA).		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Calls up on screen and explains the SCADA display of the total pipeline showing critical flows & pressures		
Item 2: Calls up on screen and explains a Compressor Station display showing key flow, pressure and valve position information		
Item 3: Creates a plot of the pipeline delivery pressure over the last 24 hours		
Item 4: Calls up and explains a Meter Station display showing flows and pressures		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A25. Weld split sleeve		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Inspect the sleeve area for loose coating or anomalies		
Item 2: If coating is in good condition, rough up the surface with light sandblast or sand paper.		
Item 3: In areas of corrosion, removes all coating, rust and foreign matter by grit blasting the pipe surface to a near white metal finish.		
Item 4: Grit blasts the inside surface of the sleeve to a near white metal finish.		
Item 5: Provides shelter if ambient temperature is less than 40F and/or wind velocity is more than 10 mph.		
Item 6: Dries all moisture from pipe and sleeve.		
Item 7: Fits the sleeve to the pipe, making tack welds in the longitudinal grooves and using centering bolts.		
Item 8: Completes the longitudinal sleeve welds according to Company welding procedures using runoff tabs.		
Item 9: Visually inspects the longitudinal sleeve welds.		
Item 10: Removes defects in the sleeve weld and repair the weld using a qualified weld procedure followed by re-inspection.		
Item 11: After welding is complete, centers the sleeve using positioning bolts.		
Item 12: Seals each end of the sleeve		
Item 13: Waits for the end seals to harden		
Item 14: Injects epoxy grout		
Item 15: Inserts plugs in all telltale holes as grout seeps out each hole.		
Item 16: Clean all excess grout off sleeve, disconnect filling equipment and leave grout to cure.		
Item 17: After 24 hours of cure, grinds off bolts and vent tubes to smooth off surface of sleeve.		
Item 18: At the direction of cathodic protection personnel, cadweld a magnesium or zinc anode to the sleeve.		
Item 19: Cleans and re-coats the sleeve and carrier pipe		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A27. Calibrate and use a CGI instrument		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Pre-use setup: Conducts daily operation check (e.g. voltage, air-tightness, calibration)		
Item 2: Use of the CGI Places probe properly		
Recognizes LEL and % gas scales		
Item 3: Able to read correct LEL and % Gas		
Evaluator's Comments (Use back and/or attach additional pages if necessary):		

OQ Ability Evaluation Checklist

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A33. Operate a backhoe/Excavate a pipeline</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Check with operations to confirm status of the pipeline.		
Item 2: Identify the location and depth of cover for the pipeline.		
Item 3: Trench/dig along the pipeline to desired depth.		
Item 4: Remove the cover directly over the pipeline to a prescribed depth by mechanical means then expose the pipeline by hand.		
Item 5: After performing necessary work prepare for backfilling.		
Item 6: Identify foreign objects in backfill material that could potentially damage pipeline, and remove as necessary.		
Item 7: Use suitable backfill material within company specified distance of the pipeline.		
Item 8: Use proper soil for support and compaction around the pipeline. Compact as necessary.		
Item 9: Identify ability to determine proper cover.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A34. Recognize damage to pipe		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable. NOTE: Since it is unlikely that damaged pipe will be encountered the evaluator should ask the individual these questions to determine if the individual knows what to look for.

	Yes	No
Item 1: What are some of the kinds of damage that could impair the serviceability of pipe		
Ans: Dents, gouges, corrosion, etc.		
Item 2: What are some of the types of damage that could affect the coating		
Ans. Disbonding, holes, etc.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A35. Control the flow of gas.</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Goes to the Pipeline System Map and selects Meter Station		
Item 2: Clicks on FLOW SET POINT		
Item 3: Increases Setpoint Value by 10%		
Item 4: Clicks on EXECUTE		
Item 5: Confirms that the Flow Set Point has changed to the new value		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Checklist

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A36. Operate Gas Valves		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Ensure location of valve to be operated Ensure the proper valve is located, especially prior to operating the valve.		
Item 2: Notify control center and/or affected personnel.		
Item 3: Operate the valve. Following company or manufacturers procedures operate the valve to ensure safe completion of the associated tasks.		
Item 4: Verify valve travel indication Ensure travel indicators, alarms, etc are properly functioning.		
Item 5: Lock the valve in the proper position, if applicable to insure the valve is protected against unauthorized operation or vandalism.		
Item 6: Notify control center and/or affected personnel.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A37. Perform basic pipe fitting		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Pre-pipe fitting considerations: Selects proper tools including required thread compound Selects proper pipe and fittings		
Item 2: Proper thread tightening Applies thread joint compound Avoids over-torqueing Properly uses selected tools		
Item 3: Tests leaks at threaded joints under gas pressure		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

IPOC OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A39. Inspect vaults		
Evaluation Location (Circle One):	On-the-job Classroom or office	Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Checks for combustibles and oxygen deficiency		
Item 2: Inspects entry way for foreign debris, insects, etc.		
Item 3: Inspects vault floor for water accumulation prior to making entry		
Item 4: Utilizes fall protection equipment when necessary		
Item 5: Utilizes breathing apparatus when required		
Item 6: Inspects internal vault structure integrity, equipment/contents, and venting when present		
Item 7: Properly closes vault		
Item 8: Records vault inspection on proper forms		
Item 9: Is familiar with company Confined Space standard		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A40. Inspect telemetering equipment		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Ensures telemetering devices are operating properly		
Item 2: Accurately reads and records telemetering device values		
AOC11: Is able to recognize signs that the telemetering equipment is not working and understands how to react to these signs		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A42. Ability to Operate an Odorizer		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Handles odorant properly		
Item 2: Fills tank as necessary		
Item 3: Inspect odorizer for condition (corrosion, etc.)		
Item 4: Set injection rate per manufacturer and company procedures		
Item 5: Measure and calculate odorant consumption rate		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

IPOC OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A44. Use an odorometer to measure odorant concentrations		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Able to recognize the smell of the odorant		
Item 2: Checks odor detection instrument for proper operation		
Item 3: Connects odor detection instrument to test points		
Item 4: Interprets odor detection instrument reading (% gas)		
Item 5: Determines whether odor is weak, sufficient or too strong using odor detection instrument and olfactory senses		
Item 6: Records odor detection instrument readings		
Item 7: Alerts company officials whenever an odor detection instrument reading is insufficient or absent		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A45. Operate tapping equipment in accordance with manufacturer's procedures		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Preliminary Procedures		
Item 1: Verifies that all the equipment to be used has the required pressure rating.		
Item 2: Verifies that there is sufficient external clearance to install the hot tapping machine and extract the cutter through the valve.		
Item 3: Verifies that the hot tap fitting is of sufficient length to accommodate hot tap operations		
Item 4: Verifies the maximum welding pressure		
Item 5: Determines the exact location for the tap and marks the pipe		
Item 6: Tests atmosphere for flammable vapors		
Item 7: Utilizes proper personal protective equipment and establishes a fire watch with suitable fire extinguisher available		
Welding		
Item 8: Verifies that welding is properly completed and inspected		
Installing the Hot Tapping Machine		
Item 9: Properly supports tapping equipment		
Item 10: Runs boring bar through the valve opening to be sure the cutter does not jam or drag		
Item 11: Calculates travel distance of the cutter		
Item 12: Confirms that the bleed-off valve will hold pressure and is not plugged		
Item 13: Ensures that precautions have been established for safe bleed-off of gas		
Before Cutting		
Item 14: Checks tightness of all bolts, packing, packing nuts and any bypass line		
Item 15: Verifies that the coupon-catcher is on the pilot bit		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A46. Recognize damage to pipe		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable. NOTE: Since it is unlikely that damaged pipe will be encountered the evaluator should ask the individual these questions to determine if the individual knows what to look for.

	Yes	No
Item 1: What are some of the kinds of damage that could impair the serviceability of pipe		
Ans: Dents, gouges, corrosion, etc.		
Item 2: What are some of the types of damage that could affect the coating		
Ans. Disbonding, holes, etc.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A47. Follow manufacturer's procedures to repair and lubricate a valve		
Evaluation Location (Circle One): <u>On-the-job</u> Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

Valve repair	Yes	No
Item 1: Notifies Gas Control of a planned maintenance on a DOT mainline valve.		
Item 2: Inspects valve for mechanical damage and leaks (bonnet, packing, flanges, fittings, etc.).		
Item 3: If required, repairs according to Vendor's maintenance manual.		
Item 4: Lubricates valve as per Vendor's instructions.		
Item 5: If possible, operates valve through a complete cycle. Where operating conditions do not permit full cycling, partially cycles valve by hand to ensure it is not seized.		
Item 6: If valve is inoperable, repairs according to Vendor's instructions (or replace).		
Item 7: Reports all valve maintenance on the designated form.		
Item 8: Verifies that the valve is returned to normal operating condition.		
Item 9: Notify Gas Control that valve maintenance is complete.		
AOC Questions: How would you recognize and react to the following abnormal operating conditions (What signs would you look for and what would you do if you found these signs?):		
Malfunctioning or inoperable valve		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A48. Follow manufacturer's procedures to repair a valve actuator		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Notifies Gas Control of planned maintenance on a DOT valve operator.		
Item 2: Inspects valve operator for mechanical damage and leaks (bonnet, packing, flanges, fittings, electrical, etc.).		
Item 3: Checks & cleans power gas system as per Vendor's manual.		
Item 4: Tests handpump according to Vendor's instructions.		
Item 5: With the operator depressured, services as per Vendor's manual.		
Item 6: Opens valve bypass and attaches lock-out tags.		
Item 7: Verifies that limit switches function properly.		
Item 8: Verifies proper operation of control, annunciation and indication loop functions.		
Item 9: Contacts Gas Control to remotely open & close the valve.		
Item 10: Removes all defeated states, closes valve bypass and verifies that the valve is returned to normal operating condition.		
Item 11: Notifies Gas Control that valve operator maintenance is complete.		
Item 12: Completes proper forms.		
AOC Questions: How would you recognize and react to the following abnormal operating conditions (What signs would you look for and what would you do if you found these signs?):		
Malfunctioning or inoperable valve actuator		
Unintended valve closure		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

Operator Qualification Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A49. Conduct a Leak Survey		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate an individual's ability in the listed covered task.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Follows safety practices that are outlined in the health and safety manual.		
Item 2: Selects pipeline area/compressor station/equipment to be tested.		
Item 3: Selects appropriate equipment and calibrates before use.		
Item 4: Checks the impact area for indication of leak: hydrocarbon liquid or frost on the ground, hydrocarbon smell, vapor clouds or product evaporation, blowing, whistling or trickling sound (if applicable).		
Item 5: Checks all equipment in compressor building as prescribed in procedure (if applicable)		
Item 6: Checks all equipment in control building as prescribed in procedure (if applicable)		
Item 7: Checks all above ground equipment in station yard as prescribed in procedure (if applicable)		
Item 8: Conducts leak survey of all below ground gas piping as prescribed in procedure (if applicable).		
Item 9: Employee has understanding of classifying station yard leaks as Type A , B or C (if applicable).		
Item 10: Makes appropriate notifications.		
Item 11: Completes appropriate documentation		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Evaluation Report

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A51. Ability to Maintain a Compressor</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate an individual's ability in the listed covered task.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Notifies Gas Control prior to starting and stopping units.		
Item 2: Inspects the following devices in accordance with Procedures and manufacturer's procedures.		
Pressure switches		
Temperature switches		
Level switches		
Flow switches		
Limit switches		
Over speed switches		
Transmitters		
Monitors & Controllers		
Unit governing system		
Unit emergency stop		
Station and unit alarms and shutdowns		
Fuel Gas Systems		
Surge Control system		
Starting system		
Vibration monitoring system		
Item 3: Documents on the appropriate form		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A52. Use compressor diagnostic equipment		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Notifies Gas Control prior to starting and stopping units.		
Item 2: Inspects the following devices using manufacturer's procedures (if applicable).		
Pressure switches		
Temperature switches		
Level switches		
Flow switches		
Limit switches		
Over speed switches		
Transmitters		
Monitors & Controllers		
Unit governing system		
Unit emergency stop		
Station and unit alarms and shutdowns		
Fuel Gas Systems		
Surge Control system		
Starting system		
Vibration monitoring system		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A53. Start and stop a compressor		
Evaluation Location (Circle One): <u>On-the-job</u> Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Notifies Gas Control prior to starting and stopping units.		
Item 2: Is knowledgeable and capable of setting unit switches and push buttons in local control, ready to start.		
Item 3: Is capable of starting unit and increasing speed to operating speed.		
Item 4: Is capable of putting unit in local control and bringing to normal stop.		
Item 5: Is knowledgeable and capable of bringing unit down on emergency stop.		
Item 6: Is knowledgeable and capable of setting unit up for remote control operation.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A54. Inspect a Pressure Regulator		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Demonstrate proper pressure/flow control using a pilot loaded regulator assembly Properly start-up pilot loaded regulator Properly adjust outlet set pressure Identify "spring-to-close" and "spring-to-open" type pilot loaded regulators Identify and properly operate "supply pilot", "unloading pilot", "needle valve", "relay pilot" and "monitor pilot"		
Item 2: Demonstrate proper pressure/flow control using a working monitor regulator Assembly, if applicable Identify first and second stage regulators Identify "monitor pilot" and "supply pilots"		
Item 3: Demonstrate proper regulator bypass techniques for maintenance purposes, if applicable Properly demonstrate valve closure and opening sequence to ensure that system MAOP is not exceeded Properly demonstrate valve closure and opening sequence to ensure that regulator station is put back in service while ensuring that system MAOP is not exceeded		
Item 4: Demonstrate ability to properly monitor pressure		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

IPOC OQ Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A55. Ability to test Emergency Shutdown System (ESD)</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate an individual's ability in the listed covered task.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Notifies Gas Control of a planned DOT ESD test.		
Item 2: Follows all pertinent safety and lockout/tagout procedures.		
Item 3: Identifies the appropriate valves to be closed for an OFF line ESD test.		
Item 4: Identifies the appropriate valves to be closed for an ON line ESD test.		
Item 5: Identifies the location of all ESD pushbuttons and pull switches.		
Item 6: Describes the sequence of events and valves that would operate after initiation of an ESD.		
Item 7: Resets all alarms and valves.		
Item 8: Notifies gas control of completion of ESD test.		
Item 9: Documents ESD test on appropriate form.		
AOC11: Recognizes indications that the ESD system is not working and knows how to react to this situation		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

IPOC OQ Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A56. Ability to Test Compressor Building Gas Detectors		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate an individual's ability in the listed covered task.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Notifies Gas Control of a planned DOT gas detector test.		
Item 2: Follows safety practices		
Item 3: Selects appropriate equipment and materials		
Item 4: Sets all appropriate switches prior to test		
Item 5: Correctly connects calibration gas to the test point.		
Item 6: Properly applies magnet to test switch and reads display		
Item 7: Properly applies test gas to sensor to calibrate		
Item 8: Properly resets the system after all gas detectors have been checked		
Item 9: Documents the test on the appropriate form		
AOC11: Recognizes indications that the gas detector is not functioning and knows what to do in this situation.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Evaluation Report

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A57. Ability to Inspect Breakout Tanks		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate an individual's ability in the listed covered task.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Employee inspects low-pressure steel tanks at intervals specified by API Standard 653 Section 6.		
Item 2: Only authorized inspectors (employees) are used to perform tank inspection on high and low pressure steel breakout tanks.		
Item 3: The employee inspects tank grounding equipment and items in the tank in service inspection checklists contained in Appendix C of API standard 653 during the external inspection.		
Item 4. Employee knows to perform the external inspection on high-pressure steel tanks every 5 years.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OO Evaluation Report

Last Name:	First Name:	ID #:
Evaluated by:		Date:
<u>A58. Ability to Inspect Navigable Waterway Crossings</u>		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate an individual's ability in the listed covered task.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Employee properly calculates depth of cover in the waterway crossing.		
Item 2: Employee properly inspects the pipeline in the waterway.		
Item 3: Employee properly records depth of cover, exposed or unsupported pipe and location of any debris hung up on the pipeline.		
Item 4: Employee is familiar with U.S. Coast Guard regulations associated with performing the navigable waterway crossing inspections.		
Item 5: Employee uses available information from previous inspections to aid in the location of the pipeline.		
Item 6: Employee understands that navigable waterway crossings must be inspected every 5 years.		
Item 7: Employee notifies company personnel in the event of an abnormal operating condition.		
Item 8: Employee understands that company personnel must be notified immediately if an unsupported pipe is identified.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A59. Ability to Install & Splice Tracer Wire and Recoat with Insulation		
Evaluation Location (Circle One): On-the-job Classroom Simulation		Page 1 of 1

This form is to be used to evaluate an individual's skill or ability by observation on-the-job.

Demonstration of abilities

The evaluator must observe the individual perform the following critical steps and indicate in the space provided whether each step was performed correctly. Provide comments on the back of this form for all steps that are judged to be not acceptable.

	Yes	No
Item 1: Locates both ends of damaged tracer wire		
Item 2: Removes any remaining wire that is damaged		
Item 3: Cuts adequate length of replacement tracer wire (using comparable material)		
Item 4: Cuts back adequate length of wire insulation (original and replacement wire ends)		
Item 5: Installs anode at splice when specified by company standards		
Item 6: Installs wire splice assemblies that will not pull apart under normal stress and can be coated to prevent moisture from entering the joint		
Item 7: Properly wraps splice with adequate overlap past each splice area using acceptable electrically non-conductive tape or mastic & tape system		
Item 8: Installs wire directly over the pipeline at proper depth according to company standards.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):

OQ Ability Evaluation Record

Last Name:	First Name:	ID #:
Evaluated by:		Date:
A79. Mitigate interference currents		
Evaluation Location (Circle One): On-the-job Classroom or office		Page 1 of 1

This form is to be used to evaluate the listed ability required for one or more covered tasks.

Demonstration of abilities

The evaluator must observe the individual perform the following actions and indicate in the space provided whether each item was performed correctly. Provide comments on the back of this form for all items that are judged to be not acceptable.

	Yes	No
Item 1: Hardware preparation: Selection of proper electrical testing equipment inclusive of reference electrodes. Selection of proper shunts or shunt wire for mitigation bonds. Selection of proper boxes or housings for bond equipment. Selection of proper hand tools to facilitate all installations Selection of interference current map		
Item 2: Pre-bond preparation (Optional): Arrange for representatives of foreign structure/current sources to be present before installing bonds.		
Item 3: Interference bond set-up and installation: Demonstrate that the proper test lead/structure contacts are identified. Demonstrate that proper bond resistor/resistance wire is installed or wound and connected to the affected structures. Demonstrate that the interference bond has normalized pipe-to-soil potentials on all affected structures. Demonstrate that diodes or reverse current switches are not required to prevent reverse current flow.		
Item 4: Record the readings: Record all interference bond information (current magnitude and direction, resistor value in ohms, what the resistor is hooked to, etc.) on company forms with accuracy adhering to company standards.		

Evaluator's Comments (Use back and/or attach additional pages if necessary):