Procedural Manual for Operations, Maintenance & Emergencies

Pacific Energy & Mining Company

(PEMC)

1 of 2

PEMC Exhibit No. 3

PACIFIC ENERGY & MINING COMPANY (PEMC)

POLICIES & PROCEDURAL MANUAL FOR OPERATIONS
MAINTENANCE & EMERGENCIES[1]

Plan Prepared By: Terry R. Spencer, Ph.D., Esq. And Dan Green

Date: December 17, 2018

Subject: Paradox Natural Gas Pipeline/ PHMSA (OPID) 39049

Operator: PEMC

Emergency Contacts:

Tariq Ahmad - PEMC President (775) 240-0769
Dan Green - PEMC Contract Compliance Officer (775) 636-3132; or
Rodney Nugent - PEMC Contract Field Supervisor (775) 842-9934.

Emergency Plan: Starts on Page 14

Review of Plan:

1. ______________________________ (Signature)
Print Name: Tariq Ahmad
Date of Review: December 16, 2018

2. ______________________________ (Signature)[2]
Print Name: Dan Green
Date of Review: December 16, 2018

3. ______________________________ (Signature)
Print Name: ____________________
Date of Review: ____________________

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[1] This Manual has been prepared in accordance with 49 C.F.R. §192.605 and is made specifically for the Paradox Natural Gas Pipeline, PHMSA (OPID): 39049

[2] Signature Blocks are continued on the next page.

4. ______________________________ (Signature)
Print Name: ____________________
Date of Review: ____________________

5. ______________________________ (Signature)
Print Name: ____________________
Date of Review: ____________________

6. ______________________________ (Signature)
Print Name: ____________________
Date of Review: ____________________

7. ______________________________ (Signature)
Print Name: ____________________
Date of Review: ____________________

8. ______________________________ (Signature)
Print Name: ____________________
Date of Review: ____________________

NOTICE TO READER: THIS MANUAL MUST BE REVIEWED AND UPDATED BY PEMC AT INTERVALS NOT EXCEEDING FIFTEEN (15) MONTHS, BUT AT LEAST ONCE EACH CALENDAR YEAR, IF THIS REQUIREMENT IS NOT MET THEN PLEASE CONTACT THE PEMC COMPLIANCE OFFICER, DAN GREEN, IMMEDIATELY.

Procedural Manual for Operations, Maintenance & Emergencies
Operator: Pacific Energy & Mining Company (PEMC)
PHMSA - Issued Operator Identification Number (OPID): 39049
Paradox Natural Gas Pipeline, Grand County, Utah

SYNOPSIS OF THIS MANUAL

THIS MANUAL MUST BE LOCATED IN THE FIELD OFFICE OF PEMC AND BE READ AND UNDERSTOOD BY PEMC'S PERSONNEL AND INDEPENDENT CONTRACTORS WHO WORK ON THE SUBJECT PIPELINE.

The purpose of this Manual is to set forth policies and procedures related to the operation of the Paradox Natural Gas (Type A, Class 1) Transmission Pipeline. See "Figure # 1" for the Pipeline, regulated under Utah Administrative Code R746-409-1, 49 C.F.R. PART 190 (except Subpart 190.223), Part 191, 192, 198 and 199, from the outlet of the gas processing plant, labeled on "Figure # 1" as OUTLET OF COMPRESSOR, NORTH END OF 16" LINE to the point labeled as TIE-IN TO NORTHWEST PIPELINE. This Pipeline is approximately 21.2 miles long and is made from carbon steel.

This Manual details written policies and procedures for conducting operations and maintenance activities, emergency response to malfunctions of the Paradox Natural Gas (Type A, Class 1) Pipeline (hereinafter referred to as the "Pipeline"), and make the public aware of the Pipeline.

PEMC Contacts
- PEMC Compliance Officer: Dan Green (775) 636-3132 (dfgreen1@dslextreme.com)
- PEMC Field Supervisor: Rodney Nugent (775) 842-9934
- PEMC President: Tariq Ahmad (775) 240-0769
- PEMC Legal Counsel: Terry R. Spencer Office (801) 566-1884, Cell (801) 244-7778

Local Government Contacts:
- Moab, Utah Mayor: Emily Niehaus (435) 259-5121
- Green River, Utah Mayor: Travis Bacon (435) 589-6447
- Moab, Utah Police Chief: Jim Winder (435) 259-8938
- Grand County Sherriff: Greg Funk (435) 381-2404
- Moab, Utah Fire Chief: T.J. Brewer (435) 259-5557
- Green River Fire Chief: Phillip Engleman (435) 491-0564

Other Relevant Contacts:
- Northwest Pipeline: (800) 972-7733
- Mid-America Pipeline: (918) 439-9637
- Rocky Mountain Power: (877) 508-5088

TABLE OF CONTENTS

FIGURES/EXHIBITS

APPENDICES

POLICIES AND PROCEDURES MANUAL SECTION NO. 1
PIPELINE CONSTRUCTION, OWNERSHIP AND CLASSIFICATION

1. PIPELINE CONVERSION TO SERVICE:

This Pipeline was originally built by a third-party entity and was unregulated by Federal or State authorities, as determined by that entity at a prior time. It is now considered to be a regulated gas transmission line by Federal and State regulatory authorities, with the current operator PEMC.

On September 23, 2013, Utah Pipeline Safety sent an email formally declaring the Paradox Natural Gas Pipeline to be a regulated gas transmission pipeline under 49 C.F.R. §192.1.

2. CONVERSION TO SERVICE REQUIREMENTS:

Pursuant to 49 C.F.R. §192, Subpart "A," and 49 C.F.R. Part 192, Subpart "J," the testing requirements provided in 49 C.F.R. §192.14(a) and (b) have been met as demonstrated below:

a. The design, construction, operation and maintenance history of the Pipeline have been reviewed by the PEMC engineering personnel and have been found to be complete, see APPENDIX "E" – Design Specifications, Crossing Permits, Material Description & Testing, Pressure Testing & Cathodic Protection & Surveys.

b. The Maximum Actual Operating Pressure ("MAOP") of the Pipeline is calculated to be 1,350 psig, using a Specified Minimum Yield Strength ("SMYS") of 60,000 psig, OD of 16", a nominal wall thickness of 0.25 inches, a Design Factor of 0.72 (assuming a Type "A," Class "1," designation), and a Longitudinal Joint Factor and Temperature Derating Factor of one (1). See APPENDIX "E" Summary section.

c. The "Normal Operating Pressure" of this Pipeline will be approximately 750 psig. This Pipeline was hydro-tested for twenty-four (24) hours at 1,875 psig; pressure calculated at one-hundred percent (100%) of the SMYS of 60,000 psig. This hydro-test pressure is 138% of the MAOP of 1,350 psi, see APPENDIX "E" – Pressure Test Report. The southern part of the Pipeline, see Figure/Exhibit # 1, from the labeled BLOCK VALVE to the TIE-IN TO NORTHWEST PIPELINE was tested from 10:20 a.m. on July, 25, 2008 to 10:20 a.m. on July 26, 2008 by a third-party contractor. The northern part of the Pipeline, see Figure/Exhibit # 1, from the labeled BLOCK

VALVE to the OUTLET OF COMPRESSOR, NORTH END OF 16" LINE was tested from 12:00 p.m. on July 27, 2008 to 1:00 p.m. on July28, 2008 by the same third-party contractor. The Pipeline held pressure and passed both tests. See MAOP and hydro-test calculator printout is located in APPENDIX "E" – Summary; and the hydro-test data associated with the Pressure Test Reports are also located in APPENDIX "E." The pressure test results associated with 49 C.F.R. Part 192, Subpart "J" of the test requirements found in 49 C.F.R. §192.505(c) – demonstrates that the test pressure held for at least eight (8) hours.

d. This Pipeline has a SMYS of 60,000 and twenty percent (20%) of this is 12,000 psi, non-destructive testing of the Pipeline is required if the normal operating pressure will exceed a hoop stress of 12,000 psi. The Normal Operating Pressure of this Pipeline is 750 psi, which using Barlows's formula to calculate hoop stress, equals 25,600 psi, which is 40.0% of the SMYS; thus non-destructive testing is required for this Pipeline, under Subpart "E" - Welding of Steel in Pipelines, see 49 C.F.R. §192.241 (b). This Pipeline was constructed and the welds inspected in accordance with API STANDARD 1104 – Welding of Pipelines and Related Facilities, see APPENDIX "E" – Line Pipe Invoices & MTRs and X-Ray Inspection Reports sections.

e. This Pipeline's right of way, see APPENDIX "F" -Right-of-Way for Paradox Pipeline-UTU-83457(Environmental Assessment UT-060-2007-051), includes the rights of way for the smaller six inch (6") carbon steel gathering pipelines as well. The Pipeline's right-of-way and all aboveground segments were visually inspected by PEMC's Dan Green on the following date: Summer 2018, for physical defects and operating conditions, which reasonably could be expected to impair the strength or tightness of the Pipeline. The Pipeline and its attachments were found in good condition and there are no known unsafe conditions that need to be corrected to the best of the knowledge of the PEMC's Compliance Officer, Dan Green.

f. The Pipeline was tested in accordance with 49 C.F.R. Part 192, Subparts "C," "D," and "J" and was found to pass the mentioned pressure tests. The MAOP for this Pipeline, see MAOP and Hydro-test calculator sheet in the Summary of APPENDIX "E," is 1,350 psig and this Pipeline operates at a hoop stress of 40.0% of the SMYS at a normal operating pressure of 750 psi, with a nominal wall thickness of 0.25 inch and a diameter of sixteen inches (16").

g. All records of construction materials used, tests conducted, repairs or any other alteration or replacement are kept for this Pipeline are located in APPENDIX "E" - Design Specifications, Crossing Permits, Material Description & Testing, Pressure Testing & Cathodic Protection & Surveys.

3. PIPELINE CLASSIFICATION: LOCATION AND TYPE

a. Pipeline Class: In accordance with the general requirements of 49 C.F.R. §192.5, the Pipeline is in a Class "1" location, as there are no buildings of any kind within two hundred twenty (220) yards on either side of the Pipeline centerline of any continuous one (1) mile length of the Pipeline.

b. Pipeline Type: This Pipeline is also a Type "A" Pipeline, as it is metallic and the hoop stress is greater than 20% of the SMYS. The SMYS is 60,000 psig and twenty percent (20%) of the SMYS is 12,000 psig. At the hoop stress of 12,000 psig, the MAOP is twenty percent (20%) plus 800 lbs or 960 psig. Operating pressure is calculated to be, using Barlow's formula, S = PD/2t, P = (2St)/D = 375 psi, which is less than 960 psig the Max. Non-destructive testing was conducted on every weld on this Pipeline. The actual hoop stress at the Maximum Allowable Operating Pressure of 960 psig is, S = PD/2t = (960*16)/(2*0.25) = 30,720 psig. Thus, the hoop stress is ((30,720/60,0000)*100) or 51.2% of the SMYS.

In accordance with 49 C.F.R. Part 192, Subpart "J," the Pipeline was tested and was found to pass the listed pressure tests. The Pipeline has a calculated maximum test pressure at 100% SMYS of 1875 psig. The Pipeline was tested as follows: (1) the south end was tested at 1870 psig starting on 5:30 p.m. on July 25, 2008 and ending at 9:15 a.m. on July 26, 2008; and (2) the North end was tested at 1875 psig starting at 5:15 p.m. on July 27, 2008 and ending on 1200 psig on July 28, 2008. The MAOP for this Pipeline (see MAOP and hydro-test calculator sheet in the Summary of APPENDIX "E," is 1350 psig and this line operates at a hoop stress of 51.2% of the SMYS at the operating pressure of the previous operating pressure of 800 psig, (used MAOP of 960 psig or, 120% of 800 psig). The MAOP was calculated using Barlow's formula with safety reductions, mainly:

P= (2ST/D)FET = ((2*60,000*0.25)/16)*0.72*1 *1= 1350 psig.

where:

P= Design pressure in psig.

S= Yield strength in pounds per square inch determined, in accordance with 49 C.F.R. §192.107, = 60,000
D= Nominal outside diameter of the Pipeline is sixteen inches (16").
T= Nominal wall thickness of the pipe in inches, in accordance with 49 C.F.R. §192.109 & § 192.103, = 0.25.
F= Design factor determined, in accordance with 49 C.F.R. §192.111, = 0.72
E= Longitudinal joint factor, determined in accordance with C.F.R. §192.113, = 1.0.
T= Temperature derating factor, determined in accordance with C.F.R. §192.115, = 1.0.

4. CHANGE IN PIPELINE CLASSIFICATION - STUDY REQUIRED

Although not expected, as this Pipeline is located on land controlled by the Bureau of Land Management, if an increase in population density indicates a change in pipeline class location for a segment of the existing Pipeline, operating at a hoop stress of 51.2% of the SMYS, or indicates that the hoop stress corresponding to the established MAOP for a segment of existing Pipeline is not commensurate with the present class location, then PEMC Compliance Officer, Dan Green, shall immediately make a study to determine:

a. The present class location for the Pipeline segment involved;

b. The design, construction, and testing procedures followed in the original construction and a comparison of these procedures with those required by the present class location under the applicable provisions of 49 C.F.R. § 192.609;

c. The physical condition of the Pipeline segment to the extent it can be ascertained from available records;

d. The operating and maintenance history of the Pipeline segment;

e. The MAOP and the corresponding operating hoop stress, taking pressure gradient into account, for the segment of Pipeline involved; and

f. The actual area affected by the population density increase.

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5. CHANGE IN PIPELINE CLASSIFICATION – CONFIRMATION/REVISION OF MAOP

a. If it is later determined that the hoop stress corresponding to the established MAOP of a segment of Pipeline is not commensurate with the present class location, and the segment of Pipeline is in satisfactory physical condition, the MAOP of that segment of the Pipeline must be confirmed or revised according to one of the following requirements:

   i. If the Pipeline segment involved has been previously tested in place for a period of not less than eight (8) hours:

      - The MAOP is 0.8 times the test pressure of a Class "2" location, 0.667 times the test pressure in Class "3" locations, or 0.555 times the test pressure in Class "4" locations.

      - The corresponding hoop stress may not exceed seventy-two percent (72%) of the SMYS of the pipe in Class "2" locations, sixty percent (60%) of the SMYS in Class "3" locations, or fifty percent (50%) of the SMYS in Class "4" locations.

      - The alternative MAOP is 0.8 times the test pressure in Class "2" locations, and 0.667 times the test pressure in Class "3" locations. For pipelines operating at alternative Maximum Allowable Operating Pressure, per 49 C.F.R. §192.620, the corresponding hoop stress may not exceed eighty percent (80%) of the SMYS of the pipe in Class "2" locations and sixty-seven percent (67%) of SMYS in Class "3" locations.

b. The MAOP of the segment involved must be reduced so that the corresponding hoop stress is not more than that allowed by 49 C.F.R. §192.611, for new segments of the Pipeline in the existing class location.

c. The segment of the subject Pipeline involved must be tested in accordance with the applicable requirements of 49 C.F.R. 192 Subpart "J," and its MAOP must then be established according to the following:

   i. The MAOP after the requalification test is 0.8 times the test pressure for

Class "2" locations, 0.667 times the test pressure for Class"3" locations, and 0.555 times the test pressure for Class "4" locations.

ii. The corresponding hoop stress may not exceed seventy-two percent (72%) of the SMYS of the pipe in Class 2 locations, sixty percent (60%) SMYS in Class "3" locations, or fifty percent (50%) of SMYS in Class "4" locations.

d. For a pipeline operating at an alternative MAOP, per 49 C.F.R. §192.620, the alternative MAOP after the re-qualification test is 0.8 times the test pressure for Class "2" locations, and 0.667 times the test pressure for Class "3" locations.

e. The corresponding hoop stress may not exceed eighty percent (80%) of the SMYS of the Pipeline in Class 2 locations and 67 percent of SMYS in Class "3" locations.

i. The MAOP confirmed or revised in accordance with 49 C.F.R. §192.611, may not exceed the MAOP established before the confirmation or revision.

ii. Confirmation or revision of the MAOP, confirmed or revised in accordance with 49 C.F.R. §192.611, does not preclude the application of 49 C.F.R. §192.553 and 49 C.F.R. §192.555.

iii. Confirmation or revision of the MAOP, that is required as a result of a study under 49 C.F.R. §192.609, must be completed within twenty-four (24) months of the change in class location and will be conducted by the PEMC Compliance Officer. Pressure reduction under provisions of ¶ 5(1)(a) or (b) above within the twenty-four (24) month period does not preclude establishing a MAOP under the provisions stated above at a later date.

6. OPERATOR CERTIFICATION/QUALIFICATION:

a. Qualification Definition: Pursuant to 49 C.F.R. §195.503, "Qualified" means that an individual has been evaluated and can: (a) perform covered tasks as assigned, and (b) recognize and react to abnormal operating conditions (described in detail in other sections of this Manual below).

b. Qualification Program: Pursuant to 49 C.F.R. §505, PEMC has developed a training program for all field personnel. This training program includes the following:

  i. Identification of tasks necessary to operate the PEMC Pipeline (see the Maintenance and Corrosion Control Tasks referenced below and described in detail in Exhibit "A" hereto);

  ii. Ensure that PEMC personnel performing Pipeline tasks are qualified;

  iii. Oversee the Pipeline tasks being completed by PEMC personnel and provide additional training as necessary; and

  iv. Complete a post-task evaluation of the Pipeline tasks completed PEMC personnel and determine if new procedures need to be adopted to more effectively and efficiently complete required Pipeline tasks.

c. Qualification Program Providers: The testing referenced in ¶6(b) will be completed by the following organizations: Dominion Energy, and Pipeline Control and Service (pipecs.com. As new qualification program providers are identified, this provision will be updated.

d. Qualification Program Record Keeping (Per 49 C.F.R. §507):

  i. Records shall be kept to identify qualified PEMC employees by name and task;

  ii. A record of all training completed by date and relevant task shall be maintained for PEMC field personnel; and

iii. A schedule of relevant training shall be maintained for PEMC field personnel.

iv. A list of training qualification methods shall be maintained which is applicable to all PEMC field personnel.

7. **EMPLOYEE QUALIFICATION PROCEDURES:**

a. Review & Up-Date of Maunal: This section of the Manual complies with 49 C.F.R. Part 192, Subparts "L" and "M." This Manual must be reviewed and updated by PEMC at intervals not exceeding fifteen (15) months, but at least once each calendar year. See cover page of this document. If this Manual has not been reviewed as stated, then the reader of this Manual is required to immediately notify the PEMC Compliance Officer, Dan Green, at (775) 636-3132 or dfgreen1@dslextreme.com.

b. Required Reading by PEMC Employees: This Manual is required to be read by all PEMC personnel that perform work on the Pipeline, therefore, a copy will be available at the field office of PEMC. All records, such as construction records, maps and operating history, will be available to the appropriate PEMC personnel and/or to independent contractors who perform work on the Pipeline. If the reader has any questions then he/she can communicate with the PEMC Compliance Officer, Dan Green, at (775) 636-3132, or dfgreen1@dslextreme.com.

c. Reader Certification: The reader must be certified by PEMC's Compliance Officer, Dan Green, in order to start any work on this Pipeline, in addition the reader must read APPENDIX "B" – Operator Qualification Plan.

d. Required Tasks: The reader must read the appropriate tasks to be completed in APPENDIX "A" – Operations and Maintenance Procedures Task Manual, before starting work related to the referenced tasks. If the reader has any questions or concerns, the reader should immediately contact the PEMC Compliance Officer, Dan Green, at (775) 636-3132.

e. Location of Records: All required periodic records and forms are found in APPENDIX "G" - Required Periodic Operations, Maintenance and Inspection Records.

8. PEMC EMPLOYEE/INDEPENDENT CONTRACTOR QUALIFICATIONS: AS APPLIED

Tariq Ahmad: The only employee of PEMC is Tariq Ahmad. He had been an oil & gas engineer for nearly forty (40) years. His responsibilities are to oversee PEMC Pipeline operations and ensure that each PEMC contract field independent contractor is properly trained. As an oil & gas engineer, Tariq Ahmand is required to engage in on-going training, such as that required to the U.S. Department of Transportation Regulations. Through this training, Tariq Ahmad must comply with the statutory provisions located in 49 C.F.R. Part 195, Subpart "G" and 49 C.F.R. Part 192), in order to be classified as a "qualified operator" of the subject Pipeline.

Dan Green: Dan Green, PEMC Compliance Officer, is an independent contractor providing services to PEMC. As an engineer, Dan Green is required to engage in on-going training, such as that required to the U.S. Department of Transportation Regulations. Dan Green is in the process of obtaining the training to be a licensed oil & gas engineer. Through this training, Dan Green must comply with the statutory provisions located in 49 C.F.R. Part 195, Subpart "G" and 49 C.F.R. Part 192), in order to be classified as a field representative for PEMC. Dan Green is the individual who has responsibility to train PEMC personnel/ independent contractors and ensure PEMC independent contractors are licensed and trained to complete each task associated with the operation of the subject PEMC Pipeline.

Rodney Nugent: Rodney Nugent, PEMC Contract Field Supervisor, is an independent contractor providing services to PEMC. He has received all necessary training from Dan Green, the PEMC Compliance Officer, necessary to complete all tasks assigned to him by Dan Green.

9. PEMC PERSONNEL/INDEPENDENT CONTRACTOR SAFETY

PEMC personnel and/or independent contractors who complete work on the Pipeline must do so while ensuring his/her safety in accordance with APPENDIX "A," and APPENDIX "B." Thus, the PEMC personnel and/or independent contractor (referred to in this section as the "worker") must be qualified by the PEMC Compliance Officer, Dan Green. The PEMC personnel and/or independent contractor must immediately notify the PEMC Compliance Officer, Dan Green, at: dfgreen1@dslextreme.com or (775) 636-3132, should any of the following occur:

a. The independent contractor does not feel competent in conducting the task or does not have the proper equipment.

b. The independent contractor feels that there is an unaccounted safety risk in performing the required repair task(s).

c. The independent contractor is not sure whether the operating pressure of the Pipeline is at a safe level during a repair operation.

d. The ground, moisture or atmospheric conditions are such as to make working/repair operations unsafe.

e. The independent contractor can't complete a task/repair due on the Pipeline due to some unforeseen circumstances, such as malfunctioning equipment, malfunctioning tools, etc. (Please provide details about any safety issue to the PEMC Compliance Officer, Dan Green.)

f. The independent contractor is unable to work due to sickness.

g. There is a lack of safety equipment needed, such as a required gas monitor, breathing apparatus, rescue harness and line, etc., as designated by the Compliance Officer, Dan Green.

h. Any other legitimate reason that may compromise the safety of any of the following: the independent contractor, the Pipeline, the equipment near the Pipeline, the equipment on the Pipeline, and/or any electrical transmission line, railroad or highway.

10. WORKING IN EXCAVATION TRENCHES:

PEMC personnel and/or independent contractors are not to enter into or work in excavated trenches unless trained and qualified for such work, having the required safety gear needed (as required by the PEMC Compliance Officer, Dan Green) and is authorized to complete the work as assigned by the PEMC Compliance Officer, Dan Green. Independent contractors, who are duly qualified, have the required safety gear, and who are authorized in writing by the PEMC Compliance Officer, Dan Green, may conduct work in excavated trenches. Minimum safety requirements are:

a. Self-contained breathing apparatus that is in working condition, has been tested as required by law, and is not damaged.

b. A portable detector that is working properly, has been tested as required by law and whose battery is charged, that can detect, the Lower Explosive Limit, Oxygen Level and Methane (The settings on the portable detector must meet or exceed the safety standards those set by OSHA and any other applicable state regulation).

c. A rescue harness and line that have been physically examined to be in working condition and not damaged.

d. Any other safety equipment, training requirements or qualifications required by the PEMC Compliance Officer, Dan Green.

11. GOVERNMENT ENFORCEMENT AND REGULATORY PROCEDURES

All PEMC personnel, without exception, shall familiarize themselves with the Pipeline Safety Enforcement and Regulatory Procedures used by the State of Utah.

12. ACCESS TO PIPELINE RECORDS

In conformance with 49 C.F.R. § 192.605(b)(3), PEMC hereby makes all relevant maps, Pipeline records and etc. available to PEMC personnel and/or independent contractors. All maps of the subject Pipeline are included within this Manual. All historical information related to this Pipeline is located in the PEMC Field Office located in Green River, Utah, with an additional copy made available at the PEMC Offices in Reno, Nevada.

POLICIES AND PROCEDURES MANUAL SECTION NO. 3
MANUAL UPDATE PROCEDURES

13. GENERAL INSTRUCTIONS AS TO MANUAL UPDATES

a. Policy: Pursuant to 49 C.F.R. § 192.605(a), PEMC is required to review and update this Manual in intervals not exceeding fifteen (15) months, but at least once per calendar year.

b. Procedures: Beginning with the year 2019, all relevant PEMC employees shall meet once per year between December 1st and December 31st to review and update this Manual. At this meeting, the following procedures will be followed:

i. **Location of Policies & Procedures Manual ("Manual"):** A copy of this Manual is located in the Field Offices of PEMC in Green River, Utah. Alternatively, an electronic copy of the Manual may be obtained. To obtain a copy electronically, contact either:

- Dan Green, PEMC Compliance Officer at (775) 636-3132
- Terry R. Spencer, PEMC Legal Counsel at (801) 566-1884 or (801) 244-7778

ii. **Pursuant to 49 C.F.R. § 192.605(b)(8), Review the Operation and Maintenance Procedures is located in Appendix "A" of this Manual:**

- Determine if the procedures contained in this Manual and associated documents were implemented as required by this Manual.
- Determine if the procedures, as written, were effective in addressing any maintenance, operations, or emergency issues that have occurred since the Manual was last updated.
- If new procedures are needed, add the corrected procedures to the Manual and identify where new procedures were added for tracking purposes.

c. Implementation: This Manual was last updated on October 9, 2018, with the next update due December 31, 2019.

14. DISTRIBUTION OF MANUAL AND TRAINING MATERIALS TO EMPLOYEES AND SUBCONTRACTORS AND EMERGENCY RESPONSE DRILL

a. Distribution of Materials:

i. The PEMC Compliance Officer, Dan Green, will ensure that a copy of this Manual is distributed to and is readily accessible by all PEMC personnel and/or independent contractors working on the Pipeline;

ii. The PEMC Compliance Officer, Dan Green, will ensure that all such independent contractors are proficient in the procedures contain in this Manual; and

iii. The PEMC Compliance Officer, Dan Green, will ensure that he is qualified to instruct all PEMC independent contractors on the contents of this Manual.

b. Emergency Response Drill:

i. As part of the on-going training process, the PEMC Compliance Officer, Dan Green, will annually, in any given twelve (12) month period, conduct an emergency incident response drill that is supervised by the PEMC Compliance Officer. The relevant PEMC independent contractor will visually inspected any above-ground portions of the Pipeline and Pipeline segment valves and switches to be closed or turned off during an "Emergency Incident." (The definition of an "Emergency Incident" is provided below.)

c. Emergency Incident Response Drill Records:

i. A record of these annual Emergency Incident drills shall be kept in APPENDIX "A," – Operations and Maintenance Procedures Task Manual, and will contain the following information:

- Date of Emergency Drill:_______________________________;
- Names of persons, companies & agencies participating:__________
  ____

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____
____

- Description of Drill scenario:____________________________
____
____
____

- Start time:________end time:__________

- Was emergency drill conducted to satisfaction:
  a. (circle one) yes or no.
  b. If no, then this emergency drill must be redone, after noted deficiencies are corrected.

- Deficiencies noted:________________________________
____
____
____

- Conduct another drill and fill out another form until all deficiencies have been corrected.

- Printed name & signature of supervisor for drill: ____________
____
____

15. DATA GATHERING/RECORD KEEPING (49 C.F.R. PART 191 and 49 C.F.R. §192.605(b)(4))

a. Record Keeping: Pursuant to 49 C.F.R. §192.603, PEMC shall keep records to show its compliance with 49 C.F.R. §192.605.

b. Data Gathering: PEMC must periodically review – every three (3) months – or more often if required by either applicable state or federal regulations – any work completed on the Pipeline to determine the effectiveness and adequacy of the procedures used during "normal" operation and maintenance. Where a deficiency is found, modified procedures will be adopted to address the deficiency. The following process will be used to complete the tasks described herein:

i. Collect all Pipeline Operations and Maintenance Records;

ii. Review Pipeline records for completeness;

iii. Review all Emergency Incident records which have occurred since the last review;

iv. Ascertain if prior procedural changes were effective in addressing the deficiency raised by any past Emergency Incident; and

v. Change any procedures to more effectively address any future Emergency Incident.

c. To Date: There have been no Emergency Incidents associated with this Pipeline.

16. DEFINITION OF AN "EMERGENCY INCIDENT" FOR REPORTING PURPOSES (49 C.F.R. §191.3)

a. In conformance with 49 C.F.R. §191.3, and for the purpose of the reporting requirements, PEMC hereby utilizes the following definition for an "Emergency Incident": An "Emergency Incident" is defined as a release of gas from the Pipeline, which results in one or more of the following consequences:

i. A Pipeline related death, or personal injury necessitating in-patient hospitalization; or

ii. Evidence of gas leaking from the Pipeline that is endangering either life or property; or

iii. A fire associated with or endangering the Pipeline; or

iv. A natural disaster that results in either ¶ 16(a)(i) or (ii) or (iii) above; or

v. Estimated property damage of $50,000 or more, including loss to the Operator and others, or both, but excluding cost of gas lost; or

vi. Unintentional estimated Pipeline gas loss of three million cubic feet (3000 mcf) or more; or

vii. An event that is significant in the judgment of the PEMC Operator, Tariq Ahmad, or PEMC Compliance Officer, Dan Green, or the Emergency Incident reporter, even though the incident did not meet the criteria listed in ¶ 16(a)(i), (ii) or (iii) above. If yes, then go to ¶ 17 below. If no, then inform Dan Green, PEMC Compliance Officer, of specific incident details and obtain specific instructions. Dan Green can be reached at: (775) 636-3132.

viii. Remember, pursuant to 49 C.F.R. §192.615(a)(5), actions directed toward protection of people have priority over actions directed toward protection of property.

17. EMERGENCY INCIDENT REPORTING (§191.5)

a. Declaration of an "Emergency Incident": Any person or agency can declare an Emergency Incident.

b. Notice of an Emergency Incident: PEMC employees and independent contractors shall, at the earliest practicable moment following discovery, but no later than one hour after confirmed discovery, give notice of Emergency Incident as follows:

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i. **If an immediate danger to life and/or property exists:** Call 911.

ii. **If no immediate danger to life or property exists:** Call the following persons in the following order:

Tariq Ahmad - President (775) 240-0769
Dan Green - PEMC Compliance Officer (775) 636-3132
Rodney Nugent - PEMC Field Supervisor (775) 842-9934

iii. **After receiving notice, PEMC Compliance Officer, Dan Green, shall contact the relevant local officials, utility providers and/or local pipeline companies:**

Moab, Utah Mayor: Emily Niehaus (435) 259-5121
Green River, Utah Mayor: Travis Bacon (435) 589-6447
Moab, Utah Police Chief: Jim Winder (435) 259-8938
Grand County Sherriff: Greg Funk (435) 381-2404
Moab, Utah Fire Chief: T.J. Brewer (435) 259-5557
Green River Fire Chief: Philip Engleman (435) 491-0564

Northwest Pipeline: (800) 972-7733
Mid-America Pipeline: (918) 439-9637
Rocky Mountain Power: (877) 508-5088

The following information should be provided to each person listed above: (a) your name and phone number, (b) a description of the Emergency Incident, (c) approximate location of the Emergency Incident, (d) date and time of the Emergency Incident, (e) number of fatalities if any, and (f) any other relevant facts. (A written summary of the emergency incident is also required if the emergency reporter is an employee of PEMC.)

Within forty-eight (48) hours after the confirmed discovery of an Emergency Incident, PEMC personnel shall revise or confirm its initial telephonic notice with an estimate of the amount of natural gas released, an estimate of the number of fatalities and injuries, and all other significant facts that are known by the operator that are relevant to the cause of the Emergency Incident or extent of the damages associated therewith. If there are no changes or revisions to the initial report, the PEMC Compliance Officer, Dan Green, shall confirm the estimates contacted in the initial Emergency Incident report.

c. Emergency Incident Additional Notifications:

i. For PEMC personnel other than the PEMC Compliance Officer, Dan Green, notice must be provided to Dan Green at (775) 636-3132.

ii. Dan Green, the PEMC Compliance Officer, will then contact PEMC President, Tariq Ahmad at (775) 240-0769, and report the "Emergency Incident."

iii. Tariq Ahmad will then contact the National Response Center either by telephone to 800-424-8802 (in Washington, DC, 202 267-2675) or electronically at http://www.nrc.uscg.mil and he shall provide the following information:

- Names of operator (PEMC), the name of the person making the Emergency Incident report, and the telephone number of the person making the Emergency Incident report.
- The location and time of the Emergency Incident.
- The number of fatalities and personal injuries, if any.
- All other significant facts that are known by PEMC that are relevant to the cause of the Emergency Incident or extent of the damages.

d. Emergency Incident Notices to Date: As of the date of this Manual Update (December 2018), there have been no reportable "Emergency Incidents" associated with the subject Pipeline, and thus, there have been no reports to the National Response Center.

18. AFTER EMERGENCY INCIDENT REPORTING (49 C.F.R. §191.7 and §191.15):

a. Initial Reports: Should an Emergency Incident occur, the PEMC Compliance Officer, Dan Green, shall within thirty (30) days of the discovery of the Emergency Incident submit a report concerning the Emergency Incident to the Pipeline and Hazardous Materials Safety Administration at http://portal.phmsa.dot.gov/pipeline..

Before sending said report, Dan Green shall review the provisions of this statutory section to ensure his compliance therewith. The report shall utilize DOT Form PHMSA F7100.2, see Appendix "C" (Incident Report-DOT Form PHMSA F7100.2) Fill out the Incident Report for and:

Go to https://portal.phmsa.dot.gov/pipeline.
User Name: Tariq.Ahmad
Password: Kashmir1!
Click on "Yes" on Disclaimer
On next screen, go to left of screen and below "Incident/Accident (2010 to present)."
Click on "Odes 2.0"
On next screen, go to the left underneath "Create Reports" and click on "Gas Transmission and Gathering."
Fill out "Incident Report" (Parts A through I) and then click on submit.

In addition, fill out the above-referenced DOT Form PHMSA F7100.2, retain a copy for your record, and either mail or fax the report to:

Lead Pipeline Safety Engineer
Utah Division of Public Utilities
P.O. Box 146751
Salt Lake City, UT 84145-6751
Telephone #: 844-427-22525
Fax: 801-530-6512

b. Supplemental Reports: Where additional information is obtained by the PEMC Compliance Officer, Dan Green, after the filing of DOT Form F7100.2 and sending it to the PHMSA at https://portal.phmsa.dot.gov/pipeline and submitting a copy to Lead Pipeline Safety Engineer, Utah Division of Public Utilities, then:

Dan Green shall submit a Supplemental Report, as soon as practicable, which shall contain the updated information as well as the original Emergency Incident date and provide it to the PHMSA at https://portal.phmsa.dot.gov/pipeline; and

A copy of this Supplemental Report shall also be submitted by PEMC Compliance Officer, Dan Green, to:

Lead Pipeline Safety Engineer

Utah Division of Public Utilities
P.O. Box 146751
Salt Lake City, UT 84145-6751
Telephone: 844-427-2525
Fax: 801-530-6512

19. ANNUAL REPORT SUBMISSION (49 C.F.R. § 191.17)

The PEMC Compliance Officer, Dan Green, shall submit an annual report for the Paradox Pipeline on DOT Form PHMSA 7100.2.1. This report must be submitted each year, not later than March 15th, for the preceding calendar year, see APPENDIX "D" - Annual Report DOT Form PHMSA F7100.2-1. It is required for the reader to ensure that this annual report has been submitted, and if not, then contact the PEMC Compliance Officer, Dan Green, at (775) 636-3132.

NOTICE TO READER:

IF THE DATE TODAY IS MARCH 15TH OR LATER OF THIS YEAR THEN THE REPORT FOR THE LAST YEAR MUST BE SUBMITTED, E.G.: Today is 12/15/2018, thus the report for 2017 must be submitted.

YEAR 2017- DATE OF SUBMISSION:________________
SIGNATURE: ________________________________
PRINT NAME: ________________________________

YEAR 2018- DATE OF SUBMISSION:________________
SIGNATURE: ________________________________
PRINT NAME: ________________________________

YEAR 2019- DATE OF SUBMISSION:________________
SIGNATURE: ________________________________
PRINT NAME: ________________________________

YEAR 2020- DATE OF SUBMISSION:________________
SIGNATURE: ________________________________
PRINT NAME: ________________________________

Instructions for the PHSMA Website annual report submission are as follows:

Go to https://portal.phmsa.dot.gov/pipeline
User Name: Tariq.Ahmad
Password: Kashmir1!
Click on "Yes" on Disclaimer
On next screen, go to the left underneath "Create Reports-Annual" and Click on "Gas Transmission and Gathering."
Read instructions for the form in APPENDIX "D" - Annual Report DOT Form PHMSA F7100.2-1 & INSTRUCTIONS
Then fill out form online REVIEW and then SUBMIT the report.

and

Mail/fax a copy of the above annual report to:

Lead Pipeline Safety Engineer
Utah Division of Public Utilities
P.O. Box 146751
Salt Lake City, UT 84145-6751
Tel: 844-427-2525
Fax: 801-530-6512

20. **NATIONAL REGISTRY OF PIPELINE AND LNG OPERATORS NOTIFICATION (49 C.F.R. §191.22):** See ¶ 21 and ¶ 22 below.

21. **OPID ISSUANCE, COMPLIANCE OFFICER DESIGNATION AND RESPONSIBILITIES:**

The OPID request by PEMC was approved on 9/24/2013 and is 39049.

a. PEMC Compliance Officer: Dan Green.

b. Responsibilities of the Compliance Officer Are:

i. Approving/denying users' OPID access requests.

ii. Managing existing users' OPID accessibility.

iii. Updating PEMC personnel on OPID issues.

iv. Be the primary contact for regulatory issues via the PHMSA Portal, https://portal.phmsa.dot.gov/pipeline, and to act as the primary contact for regulatory issues with Lead Pipeline Safety Engineer, Utah Division of Public Utilities.

v. Validate the information submitted to the PHMSA Portal and to the Lead Pipeline Safety Engineer, Utah Division of Public Utilities.

22. EVENTS/CHANGE EVENTS REPORTING (49 C.F.R. §191.22):

a. Events Reporting: PEMC, through the PEMC Compliance Officer for this OPID, must provide notice of any "Event,"described below, to the PHMSA (electronically) through the PHMSA Portal, and by submitting copies of the same documents to the Lead Pipeline Safety Engineer, Utah Division of Public Utilities, through either the U.S. mail, at P.O. Box 146751, Salt Lake City, UT 84145-6751; by Telephone: 844-427-2525, or by Fax: 801-530-6512, for any of the following:

i. Construction or any planned rehabilitation, replacement, modification, upgrade, or update of a facility (there are none), other than a segment of Pipeline that costs $10 million or more. If sixty (60) day notice is not feasible because of an Emergency Incident, the PEMC Compliance Officer, Dan Green, must notify PHMSA as soon as practicable; or

ii. Construction of ten (10) or more miles of a new pipeline; or

iii. Construction of a new LNG plant or LNG facility (in the regulated section of the existing gas transmission pipeline).

b. Change Events Reporting: The PEMC Compliance Officer, Dan Green, shall notify PHMSA and the Lead Pipeline Safety Engineer of the following Construction Events no later Than sixty (60) days before one of the following "Events" occur:

i. A change in the primary entity responsibility (i.e., with an assigned OPID) for managing or administering a safety program required by the 49 C.F.R. Parts 190, 191, 192, 198 or 199 covering pipeline facilities operated under multiple OPIDs; or

ii. A change in the name of the Operator; or

iii. A change in the business entity responsible for an existing Pipeline, Pipeline segment or Pipeline facility; or

iv. The acquisition or divestiture of fifty (50) or more miles of a pipeline or pipeline system subject to regulation under 49 C.F.R. Parts 190, 191, 192, 198 and/or 199.

23. SAFETY-RELATED CONDITION REPORTING (49 C.F.R. §191.23)

a. Defining a "Safety-Related Condition": If any of the conditions listed below occur within could within the AREA OF CONCERN, (see /Exhibit # 1), then a Safety-Related Condition exists. As to this Pipeline, the areas of concern include: (1) where the Pipeline crosses US 191, and (2) where the Union Pacific Railroad and high voltage electric transmission line are located (approximately within ¼ mile of Latitude 38.7445916 degrees North and 109.7365472 degrees West). The following may create a Safety-Related Condition:

i. Unintended movement or abnormal loading by environmental causes, such as an earthquake, landslide, or flood, that impairs the serviceability of the Pipeline; or

ii. Any material defect or physical damage that impairs the serviceability of the Pipeline; or

iii. Any malfunction or operating error that causes the pressure of the Pipeline to rise above its Maximum Allowable Operating Pressure (plus the buildup allowed for operation of pressure limiting or control devices) or a Pipeline pressure that exceeding 1350 psig); or

iv. A leak in the Pipeline that constitutes an emergency incident as described in ¶ 5(a) above; or

v. Any other condition that could lead to an imminent hazard and causes a twenty percent (20%) or more reduction in Pipeline operating pressure or shutdown of the Pipeline. This twenty percent (20%) reduction in pressure would be anything below 600 psig, where the normal operating pressure is

750 psig.

A REPORT IS NOT REQUIRED IF THE ABOVE LISTED SAFETY RELATED CONDITIONS – (i) THROUGH (v) above --, ARE CORRECTED BY REPAIR OR REPLACEMENT IN ACCORDANCE WITH APPLICABLE SAFETY STANDARDS, SEE APPENDIX "A" -- Operations and Maintenance Procedures Task Manual-- and APPENDIX "B" – Operator Qualification Plan -- WITHIN FIVE WORKING DAYS (NOT INCLUDING SATURDAY, SUNDAY OR FEDERAL HOLIDAYS) AFTER THE DAY A REPRESENTATIVE OF PEMC FIRST DETERMINES THAT A SAFETY-RELATED CONDITION EXISTS.

b. Facts Which Would Require Safety-Related Condition Report: The PEMC Compliance Officer, Dan Green, shall record and report the existence of any of the following conditions, in a Safety-Related Condition Report:

i. A material deviation from the Pipeline's hoop stress of more than twenty percent (20%) of its specified minimum yield strength, SMYS. (The Pipeline currently operates at a hoop stress of approximately 40% of SMYS.)

ii. A material or twenty percent (20%) deviation the Pipeline's normal operating pressure of 750 psi.

iii. The existence of corrosion which has reduced the Pipeline wall thickness to less than that required for the Maximum Allowable Operating Pressure of 1350 psi.

iv. Localized corrosion than has caused pitting to a degree where leakage might result. (This does not include localized corrosion pitting on an effectively coated and cathodically protected Pipeline segment);

c. Safety-Related Condition Inspection: Following the discovery of a Pipeline Safety-Related Condition, the PEMC Compliance Officer, Dan Green, will determine, if the Pipeline has suffered any adverse impact as a result of a Safety-Related Condition, or if there is a material deviations from the operating norms set forth above. This determination can be from sources such as the data from the last Pipeline survey and/or from the Pipeline operating pressure. The report, to be completed by the PEMC Compliance Officer, will address these issues.

d. Filing a Safety-Related Condition Report:

i. **Timing & Where Reports Are to be Sent:** Each report of a Safety-Related Condition shall be filed in writing within five (5) days business days (not including Saturday, Sunday, or federal holidays) after the day a representative of PEMC first determines that the condition exists, but in no case later than ten (10) business days after the day after the PEMC representative classifies the condition as a Safety-Related Condition. Separate Safety-Related Conditions may be described in a single report if they are closely related to each other. See Safety-Related Condition Report Form below. A copy of the Safety-Related Condition Report Form shall be kept in APPENDIX "G" - Required Operations, Maintenance and Inspection Records. Reports are to be sent via FAX transmission to:

- To the Associate Administrator, OPS (Office of Pipeline Safety, PHMSA, Fax: 202-366-7128); and
- The Lead Pipeline Safety Engineer, Utah Division of Public Utilities, (P.O. Box 146751, Salt Lake City, UT 84145-6751 (Tel:801-844-427-2525 & Fax: 801-530-6512), The report must be headed by the phrase "Safety Related Condition Report."

ii. **Information to be Contained in the Safety-Related Condition Report:** PEMC shall provide the following information in a Safety-Related Condition Report:

- Safety Related Condition Report (Required Heading)
- Date of Report:______________________________
- Operator Name: Pacific Energy & Mining Company, PHMSA OPID NUMBER 39049.
- Operator Address: 3550 Barron Way, Suite 13-A, Reno, NV 89511.
- Information for person submitting Report: ____________________
  Name & Job Title______________________________________

Business Telephone #______________________________

iii. **Information for person who determined that a Safety-Related Condition Exists :**
Name & Job Title: ______________________________
Business Telephone # ______________________________
Date:
______________, the Pipeline condition was discovered,
______________, condition classified as a Safety-Related Condition.

. Location of Safety-related Condition: ______________________________
____
Grand County, UT (Paradox Pipeline, OPID 39049),
Latitude__________________Longitude: ____________________

Description:____
____
____

viii. **Description of the Safety-Related Condition** (including circumstances leading to its discovery and any significant effects of the condition on safety):
____
____
____
____

ix. **Corrective Action Taken:** (including reduction in pressure or shutdown) to address the Safety-Related Condition before the report is submitted and the planned follow-up or future corrective action, including the anticipated schedule for starting and concluding such action: ____________________
____
____
____

x. **Effect of Corrective Action Taken** (circle one): (a) Reduction in pressure, or (b) Shutdown.

xi. **Follow-Up Action Anticipated:** ______________________

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____

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24. NATIONAL PIPELINE MAPPING SYSTEM REPORTING (49 C.F.R. §191.29)

The PEMC Compliance Officer, Dan Green shall annually, by March 15th, provide the following:

a. Geospatial data, attributes, metadata and transmittal letter appropriate for use in the National Pipeline Mapping System. Acceptable formats and additional information are specified in the NPMS Operator Standards Manual available at www.npms.phmsa.dot.gov or by contacting the PHMSA Geographic Information Systems Manager at (202) 366-4595.

b. On a public website provide the Pipeline Operator name (PEMC), and the PEMC contact person.

c. If there are no changes from the prior year, PEMC must comply with the requirements provided at the following website: www.npms.phmsa.dot.gov or call the Geographic Information Systems Manager at (202) 366-4595.

POLICIES AND PROCEDURES MANUAL SECTION NO. 5
NORMAL OPERATIONS: MAINTENANCE UNDER 49 C.F.R. PART 192 SUBPART "M"

25. NORMAL OPERATIONS AND MAINTENANCE: MAINTENANCE (49 C.F.R. § 192.605 and 49 C.F.R. Part 192, Subpart M)

In conformance with 49 C.F.R. § 192.605(b)(1) and 49 C.F.R. Part 192, Subpart M, PEMC hereby adopts the maintenance procedures utilizing the statutory section provided below herein as follows:

a. §192.703 Implementation Procedures General: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0211	Measure & Characterize Mechanical Damage On Installed Pipe and Components	41-42

b. §192.705 Transmission Line: Patrolling:

i. **Purpose of Pipeline Patrolling**: There are no dwellings in the vicinity of the Pipeline. There is a very low probability of any population changes near the Pipeline, as it is located on land controlled by the Bureau of Land Management.

ii. **Patrolling Related Topics**: Failures, leakage, corrosion, etc. are addressed in regards to the severity of the deficiency with emergency, abnormal, and normal shutdowns are addressed. All deficiencies, once the subject pipeline is made safe for work/repair, are addressed through the Authorization for Maintenance and Repair Record (see ¶ __), and Periodic Review of Normal Maintenance and Repair Record (see ¶ __). Abnormal Shutoff Procedures are also addressed in Periodic Review of Abnormal Shutoff Procedures and Corrective Action by the Compliance Officer (see ¶ __ - ¶ __). While Cathodic Protection History, Corrosion Control Testing Locations, External Corrosion Control, External Corrosion Examination of Buried Pipeline When Exposed, External Corrosion Control Monitoring & Responsibility and Additional Corrosion Monitoring-Testing of Rectifiers & Connections are

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addressed in ¶ __ through ¶ __.

iii. **Location of Pipeline Patrolling**: This Pipeline must be patrolled from the OUTLET OF COMPRESSOR NORTH END OF SIXTEEN INCH (16") PIPELINE, as marked on the Map in Figure/Exhibit # 1, to the TIE-IN TO NORTHWEST PIPELINE, also marked on Map in Figure/Exhibit # 1, every six (6) months, or one-hundred eighty (180) days, of the last patrol date. PEMC's designated authorized person, appointed by the PEMC Compliance Officer, Dan Green, shall conduct this patrol to observe surface conditions on and adjacent to the transmission line right-of-way for indications of leaks, construction activity, corrosion and other factors affecting safety and operation. The Paradox Pipeline Patrolling Record will be filled out for each Pipeline Patrol and emailed or otherwise transmitted to the PEMC Compliance Officer, Dan Green, at dfgreen1@dslextreme.com. The PEMC Compliance Officer will then initiate an Authorization for Maintenance and Repair Record procedure (see the Authorization for Maintenance and Repair Record Form above), if needed. A copy of the Pipeline Patrolling Record will be filled out and maintained in APPENDIX "G" – Required Periodic Operations, Maintenance and Inspection Records.

iv. **Timing of Pipeline Patrolling**: If the reader finds that is has been more than one-hundred and eighty (180) days or six (6) months since the last Pipeline Ptrol, as shown by the documents in APPENDIX "G," then the reader should immediately notify the PEMC Compliance Officer, Dan Green, by email at dfgreen1@dslextreme.com.

The last Patrol of this Pipeline was conducted on: ____________________
(Dan)

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v. **Paradox Pipeline Patrolling & Leak Survey Record[3]:**

PATROL#[4]	START DATE	END DATE	PATROLLER/SURVEYOR

vi. **Damage Prevention Program – In General:** This program is written to alleviate any damage to the Pipeline by setting forth written procedures before any excavation activity takes place in the vicinity of the Pipeline. Excavation activities include (a) excavation, (b) blasting, (c) boring, (d) tunneling, (e) backfilling, and (f other earthmoving operations in the vicinity of or where the subject Pipeline is physically located.

vii. **Damage Prevention Program – PEMC Work:** As mentioned insection discussing Maintenance and Repair Records, all work on the Pipeline shall be authorized by the PEMC Compliance Officer, Dan Green, on the required form. All work conducted, thereafter, will be in conformance with APPENDIX "A" – Operations and Maintenance Procedures Task Manual – and will be conducted by a PEMC employee or independent contractor, authorized by the PEMC Compliance Officer, Dan Green. Additionally, the PEMC Compliance Officer, Dan Green, will ensure that the PEMC employee or independent contractor is qualified, as per APPENDIX "B" – Operator Qualification Plan.

viii. **Damage Prevention Program – Third Party Work Near Pipeline:** PEMC participates in the Blue Stakes of Utah, Utility Notification Center, Inc.'s, "811" program. PEMC is a member in good standing with the program. Pursuant to Utah law, an excavator must call 811 in Utah for information regarding the location of utilities. Blue Stakes, thereafter will communicate

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[3] Email all Gas Pipeline Patrol and/or Pipeline Gas Survey data to PEMC Compliance officer Dan Green at: dfgreen1@dslextreme.com.

[4] The Patrol Respondent shall identify deficiencies and location (longitude & latitude).

with PEMC in order to mark the location of the Pipeline.

ix. **Blue Stakes Membership Information**: The web address for Blue Stakes is www.Bluestakes.org The procedure to log in is as follows:

Go to "MEMBERS,"
Scroll down under "MEMBERS," to "WEB ACCESS LOGIN."
Click on "WEB ACCESS LOGIN."
Enter User Name: MTAHMAD.
Password: PEMC123!

See APPENDIX "H" – Marking Colors, Blue Stakes Member Handbook & Utah Code Title 54, Chapter 8a.

x. **Blue Stakes Notification**: Notifications made by Blue Stakes program are as follows:

- Notification Information to be sent to: Tariq Ahmad: (775) 240-0769, taroil@yahoo.com for receiving locate notifications.
- Emergency Notifications are to be sent to: Dan Green: (775) 636-3132, dfgreen1@dslextreme.com
- Damaged Utility Notification are to be sent to: Rodney Nugent: 775-842-9934.
- Engineering Notifications for information on PEMC's Pipeline location for non-excavation type locate requests are to be sent to: Tariq Ahmad: 775-240-0769, taroil@yahoo.com
- Billing Information is to be sent and/or received by: Tariq Ahmad, 775-240-0769, taroil@yahoo.com

Please see APPENDIX "H" – Marking Colors, Blue Stakes Member Handbook & Utah Code Title 54, Chapter 8a.

xi. **Marking of an Underground Pipeline**: Pipeline location markings shall be sent to PEMC Field Supervisor Rodney Nugent. He can be contacted at

(775) 842-9934).

xii. **Post Marking Responsibilities**: After marking the Pipeline location or determining that PEMC does not have a Pipeline in the area of the excavation, PEMC Field Supervisor, Rodney Nugent, shall notify the excavator, electronically, with a copy of the email sent to PEMC Compliance Officer, Dan Green, who can be reached at (775) 636-3132 or via dfgreen1@dslextreme.com . A copy of the initial notification and copies of all emails will be kept in APPENDIX "G."

The relevant sections of the Utah Code are discussed below:

- Within forty-eight (48) hours, means a forty-eight (48)-hour period occurring during business days, which includes any day except Saturday, Sunday, or a legal holiday (Utah Code § 54-8a-2) of the receipt of the notice required by Utah Code § 54-8a-4, PEMC shall:
- Mark the location of its underground facilities in the area of the proposed excavation; or
- Notify the excavator, by telephonic or electronic message or indication at the excavation site, that the operator does not have any underground facility in the area of the proposed excavation.
- The underground facility shall be marked using the Uniform Color Code and Marking Guidelines, see APPENDIX "H" – Marking Colors, Blue Stakes Member Handbook & Utah Code Title 54, Chapter 8a, published by the Common Ground Alliance, as amended in the current version of the excavators' guide published by the statewide association established in Utah Code § 54-8a-9.
- PEMC is not required to mark the underground facilities within forty-eight (48) hours if the proposed excavation:
- is not identified in accordance with Utah Code § 54-8a-4(2) or is not marked as stated in Utah Code § 54-8a-4(3);
- is located in a remote area;

- is an extensive excavation; or

- presents other constraints that make it unreasonably difficult for PEMC to comply with the marking requirements of this section; or

- PEMC is not able to readily locate the underground facilities from the surface with standard underground detection devices.

- If PEMC cannot proceed with the marking because of a situation described herein, PEMC shall contact the excavator within forty-eight (48) hours after the excavator's notice of excavation or request for a location request assignment made in accordance with Utah Code §54-8a-4 and:

- Request a meeting at the proposed excavation site or some other mutually agreed upon location; or

- At PEMC's discretion, contact the excavator and request the proposed excavation site be outlined in accordance with Utah Code §54-8a-4(3).

- For a situation described herein, the meeting or completed outlining of the proposed excavation site constitutes the beginning of a new forty-eight (48)-hour period within which the PEMC Operator must begin marking the underground facilities.

- For the situation described herein, the excavator and PEMC Operator shall agree on a plan of excavation designed to prevent damage to the operator's underground facility.

- Notwithstanding the agreement, the excavator shall proceed in a manner that is reasonably calculated to avoid damage to the underground facility.

- PEMC need not mark or locate an underground facility the Operator does not own.

- An underground facility includes a water or sewer lateral or a facility running from a house to a garage or outbuilding.
- PEMC may mark the location of a known facility connected to the Operator's facilities that is not owned or operated by the Operator
- Marking a known facility imposes no liability on PEMC for the accuracy of the marking.
- Each marking is valid for not more than fourteen (14) calendar days from the date notice is given.
- If multiple lines exist, the markings must indicate the number of lines; or all lines must be marked.

xiii. **Specific Marking Instructions: for Pipeline**: Marking for Excavation (see APPENDIX "H" – Marking Colors, Blue Stakes Member Handbook & Utah Code Title 54, Chapter 8a):

- The excavator shall use a "Tolerance Zone" of twenty-four (24) inches for this Pipeline, which is 32" from each side of the centerline marked for this 16" diameter buried steel Pipeline.
- PEMC shall mark the said Pipeline, as per instructions in APPENDIX "H" -- Uniform Color Code and Marking Guideline, page 91.
    - The color to be used is Yellow for gas.
    - The company identifier is PEMC, to be used when there is another company using the color yellow.
    - The facility identifier is "G" for Gas.
    - The underground conduit "Construction Descriptions" are "HP" (High Pressure), "T" (Transmission Facility).
    - The Infrastructure Material is STL (Steel).

- The label will be yellow and will read PEMC/G/HP/T/16" STL.

- Use either yellow paint, flags, stakes, whiskers or a combination to identify the buried gas pipeline as above at or near an excavation site.

- Mark in yellow approximately twelve (12) inches to eighteen (18) inches long and one (1) inch wide, spaced approximately 4' to 50' apart.

- Either mark the centerline of the gas Pipeline (see illustration In APPENDIX "G" - on page 91 of Uniform Color Code & Marking Guidelines), or place the marks over the approximate outside edges of the buried gas Pipeline with a line connecting the two horizontal lines (in the form of an "H") to indicate there is only one pipeline.

xiv. **Marking for Location of Gas Pipeline:** Installing line markers can be used when a main or transmission line crosses or lies in close proximity to an area that, in the PEMC Operator's judgment, is likely for excavation or damage. Typical examples include the following.

- Drainage areas, such as flood-prone watercourses.

- Irrigation ditches and canals subject to periodic excavations for cleaning out or deepening.

- Drainage ditches subject to periodic grading, including those along roads.

- Agricultural areas in which deep plowing or deep-pan breakers are employed.

- Active drilling or mining areas.

- Industrial or plant areas where excavating, earth moving, and heavy equipment operations are routine.

xv. **Marking Multiple Pipelines:** If multiple pipeline facilities are within the same right-of-way or in the same area, each operator should mark its facilities in a way to eliminate confusion.

- When line markers cannot be placed directly over a pipeline due to lack of support, obstructions, or need to facilitate maintenance, the markers can be offset from a pipeline facility. Markers may include language such as "in the vicinity" or "in proximity of," but should not include specific distances.

- Install markers at designated locations along the right-of-way, where practical, and wherever the party exerting control over the surface use of the land will permit such installations. Possible locations for line marker placement include the following:

  - Fence lines;
  - Angle points (i.e., bends and changes in pipeline direction);
  - Lateral take-off points;
  - Stream crossings (including bridges);
  - Where necessary to identify pipeline locations for patrols;
  - Leak surveys, and
  - Where necessary for visibility of line markers in both directions.

xvi. **Other Pipeline Marking Methods:** Other methods of indicating the presence of the Pipeline where the use of conventional markers is not feasible, are as stenciled markers, cast monument plaques, signs, or devices flush mounted in curbs, sidewalks, streets, building facades, or other appropriate locations.

- Temporary markers can be used in areas of known heavy construction activity during the period that construction is in progress, particularly along highways, strip mines, and major excavations.

xvii. **Notification of Local Companies Engaged in Excavation Near Pipeline:**

- There are no local companies engaged in excavation at the remote site of this Pipeline, however, as companies move in the area, PEMC will notify these companies of the location of the Paradox Pipeline and the requirements of the one call system.

- Governmental Authorities notification will include the BLM in Moab, who will be given information as needed for the public using the lands US government land near the Pipeline.

- The Moab and Green River Mayor's office, the Moab and Green River Police Department and the Moab and Green River Fire Department will also be given information as needed for the public using the land where the Pipeline is located.

xviii. **Inspection of Excavation Work by PEMC:**

- The PEMC Compliance Officer, Dan Green, will observe the excavation site as necessary while the excavation proceeds and inform the excavation company of any potential threats to the Pipeline and stop work immediately until the potential threat is eliminated. PEMC Field Supervisor, Rodney Nugent, will also promptly notify the PEMC Compliance Officer, Dan Green, by the quickest method possible of the danger and status of any excavation activities.

- The PEMC Compliance Officer, Dan Green, will inspection the excavation work after completion. The PEMC Compliance Officer will then initiate an Authorization for Maintenance and Repair Record (¶ 60 and ¶ 61 below), which will detail the inspections tasks at the excavation site, including a gas leak survey.

c. §192.706 Transmission Lines: Leakage Surveys: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
1261	Walking Gas Leakage Survey	121-123

PATROL#[5]	START DATE	END DATE	PATROLLER/SURVEYER

A copy of this Pipeline Patrolling Record, will be filled out and maintained in APPENDIX "G" – Required Periodic Operations, Maintenance and Inspection Records. The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

d. <u>§192.707 Implementation Procedures: Pipeline Markers for Mains and Transmission Lines</u>:

Task#	Operations and Maintenance Procedure	Page #
1301	Install and Maintain Pipeline Markers	121-123

DATE	WHERE INSTALLED	INSTALLER

e. <u>§192.709 Transmission Lines: Record Keeping</u>: All records consistent with this Statutory requirement are located at the PEMC Field Office in Green River, Utah. An additional copy is located at PEMC's offices in Reno, Nevada. Other records keeping

[5] The Patrol Respondent shall identify deficiencies and location (longitude & latitude).

provisions are discussed above.

f. §192.711 Transmission Lines: General Requirements for Repair Procedures: PEMC acknowledges the necessity to make repairs in accordance with the requirements of this statutory requirement. All of PEMC's records showing repairs for the last five (5) years are are located at the PEMC Field Office in Green River, Utah. An additional copy is located at PEMC's offices in Reno, Nevada.

DATE	WHERE REPAIRED	DESCRIBE THE REPAIR

g. §192.713 Transmission lines: Permanent Field Repair of Imperfections and Damages: All records of repairs consistent with this Statutory requirement are located at the PEMC Field Office in Green River, Utah. An additional copy is located at PEMC's offices in Reno, Nevada.

h. §192.715 Transmission Lines: Permanent Field Repair of Welds: All records of repairs consistent with this Statutory requirement are located at the PEMC Field Office in Green River, Utah. An additional copy is located at PEMC's offices in Reno, Nevada.

i. §192.717 Transmission Lines: Permanent Field Repair of Leaks: All records of repairs consistent with this Statutory requirement are located at the PEMC Field Office in Green River, Utah. An additional copy is located at PEMC's offices in Reno, Nevada.

j. §192.719 Transmission Lines: Testing of Repairs: All records consistent with this Statutory requirement are located at the PEMC Field Office in Green River, Utah. An additional copy is located at PEMC's offices in Reno, Nevada.

k. §192.721 Distribution Systems: Patrolling: See discussion of 49 C.F.R. §192.705 above.

l. § 192.723 Distribution Systems: Leakage Surveys: See 49 C.F.R. §192.706 above.

m. §192.725 Implementation Procedures: Test Requirements for Reinstating Service Line: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0571	Pressure Test – Non-Liquid Medium -MAOP Greater That or Equal to 100 psi	61-64
0591	Leak Test at Operating Pressure	65

n. §192.727 Implementation Procedures: Abandonment or Deactivation of Facilities: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
1661	Isolating, Abandoning and Deactivating Pipeline Facilities	138-139

o. §192.731 Compressor Stations: Inspection and Testing of Relief Devices: All records consistent with this Statutory requirement are located at the PEMC Field Office in Green River, Utah. An additional copy is located at PEMC's offices in Reno, Nevada.

p. §192.735 Compressor Stations: Storage of Combustible Materials: All records consistent with this Statutory requirement are located at the PEMC Field Office in Green River, Utah. An additional copy is located at PEMC's offices in Reno, Nevada.

q. §192.736 Compressor Stations: Gas Detection: All records consistent with this Statutory requirement are located at the PEMC Field Office in Green River, Utah. An additional copy is located at PEMC's offices in Reno, Nevada.

r. §192.739 Implementing Procedures: Pressure Limiting and Regulating Stations: Inspection and Testing: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0381	Spring-Loaded and Pilot-Operated Pressure	

	Regulating, Limiting and Relief Devices: Inspection, Testing, Prevention and Corrective Maintenance	55-60
0391	Spring-Loaded and Pilot-Operated Pressure Regulating, Limiting and Relief Devices: Inspection, Testing, Prevention and Corrective Maintenance	55-60
0411	Spring-Loaded and Pilot-Operated Pressure Regulating, Limiting and Relief Devices: Inspection, Testing, Prevention and Corrective Maintenance	55-60
0421	Spring-Loaded and Pilot-Operated Pressure Regulating, Limiting and Relief Devices: Inspection, Testing, Prevention and Corrective Maintenance	55-60

s. §192.740 Implementation Procedures: Pressure Regulating, Limiting, and Overpressure Protection: Individual Service Lines Directly Connected to Production, Gathering, or Transmission Pipelines: All records consistent with this Statutory requirement are located at the PEMC Field Office in Green River, Utah. An additional copy is located at PEMC's offices in Reno, Nevada.

Summer 2018: Last Inspection Date (Dan)

t. §192.743 Implementation Procedures: Pressure Limiting and Regulating Stations: Capacity of Relief Devices: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0381	Spring-Loaded and Pilot-Operated Pressure Regulating, Limiting and Relief Devices: Inspection, Testing, Prevention and Corrective Maintenance	55-60
0391	Spring-Loaded and Pilot-Operated Pressure Regulating, Limiting and Relief Devices: Inspection, Testing, Prevention and Corrective Maintenance	55-60

0411	Spring-Loaded and Pilot-Operated Pressure Regulating, Limiting and Relief Devices: Inspection, Testing, Prevention and Corrective Maintenance	55-60
0421	Spring-Loaded and Pilot-Operated Pressure Regulating, Limiting and Relief Devices: Inspection, Testing, Prevention and Corrective Maintenance	55-60

u. §192.745 Implementation Procedures: Valve Maintenance: Transmission Line: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0331	Valve Visual Inspection & Partial Operation	53-54
0341	Valve Visual Inspection & Partial Operation	53-54

v. §192.747 Implementation Procedures: Valve Maintenance: Distribution Systems: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0331	Valve Visual Inspection & Partial Operation	53-54
0341	Valve Visual Inspection & Partial Operation	53-54

w. §192.753 Implementation Procedures: Caulked Bell and Spigot Joints: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0831	Cast-Iron Caulked Bell and Spigot Joints Installation and Maintenance of Mechanical Leak Clamps	79
0841	Cast-Iron Joints Sealing Encapsulation	80
0851	Internal Sealing cast-Iron and Ductile Iron	81

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x. §192.755 Implementation Procedures: Protecting Cast-Iron Pipelines: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

POLICIES AND PROCEDURES MANUAL SECTION NO. 6
CORROSION CONTROL UNDER 49 C.F.R. PART 192 SUBPART "I"

26. PIPELINE CATHODIC PROTECTION HISTORY

Examination of the historical record demonstrated that the Pipeline was completed on June 27, 2008, and the hydrostatic testing completed on July, 28, 2008. See APPENDIX "G" – X-Ray Inspection Reports &Pressure Test Reports sections. Thereafter, see APPENDIX "G" – Cathodic Reports section:

A report by a Corrosion Specialists, dated October 6, 2008, stated personnel safety mats were installed around the mainline, block valve and the launcher just south of the gas plant. These mats were installed to equalize the AC potential between the steel structures and the surrounding ground. The grounding materials were ½" by 9/16" zinc ribbon with No. 6 HMWPE copper pig tails. The ribbon was looped on approximate six (6) inch centers and installed six inches (6") below Grade. Copper pig tails were cad-welded to the Pipeline.

A report dated October 21, 2008, by CCIS, conducted AC interference testing on the Pipeline paralleling two high voltage power lines. This report discusses the HVAC and DC pipe to soil potential readings on the section of the Pipeline between the gas plant and the Block Valve and was designed to meet the mitigation requirements. The report concluded that the cathodic protection on this Pipeline was below the required - 0.85 volts P/S potential and needed to be addressed. The recommendations were to install grounding mats connected to the line through a decoupling device with a # 4 cable and to install a grounding system, 200' of # 2 bare solid copper wire installed in a coke breeze backfill in a 100' long ditch connected to the Pipeline, that is connected to the Pipeline with a decoupling device. The readings are as given in the said report, with the majority of the P/S readings less than the - 0.85 volts P/S potential and no reading of the AC volts, P/S readings, more than 8.29 volts.

A report by Corrosion Specialists, dated November 2, 2008, stated that the manufacturer of the FBE coating, Dupont Powder Coatings, was contacted and the information relayed was that an AC voltage of 50 to 60 volts for a short period of time would not damage the Pipeline coating. However, the report also stated that the same voltage for an extended time (time unspecified) could possibly damage the Pipeline coating. Further, this brief report recommended the installation of either a magnesium or zinc ground to minimize the AC voltage.

A report by CCIS, for work conducted from December 6, 2008 to December 7, 2008, for a

P/S DC survey from the Block Valve to the Tie-in to Northwest Pipeline, concluded that cathodic protection for segment of the Pipeline in question were in excess of the - 0.85 volts, ranged from - 1.052 to - 1.268 volts, thus meeting the regulatory requirement of a reading more negative than - 0.85 volts.

A report by CCIS, of work conducted on the Pipeline from December 10 2008 to Decembwer 19, 2008, included: (1) installation of a flange kit on the two inch (2") bypass line and insulating pads on the supports on the receiver (at the Tie-in to Northwest Pipeline); (2) installation of an AC grounding grid to drain HVAC interference from the HVAC power lines; (3) taking relevant readings from both AC and DC P/S between the gas plant and the Tie-in to Northwest pipeline; (4) designing cathodic protection requirements; and (5) providing an estimate for the necessary cathodic protection equipment. (The DC P/S readings were - 0.511 & - 0.74 volts on the Railroad Casing D/S and U/S respectively, and were - 1.298 and - 1.537 volts , P/S, on the two sides of Mid-American Pipeline crossing. The HVAC readings were from 0.785 to 20 volts on the upstream side of the Block valve (from the U/S side of the Block Valve to the Gas Plant) and 0.16 volts on the D/S side of the Block Valve, there were no AC readings taken south of the Block valve D/S reading.)

A report by CCIS, for work conducted on the Pipeline from January 10, 2009 to January 14, 2009, which described the installation of zinc grounding mats on all test stations, drain station and above ground piping; connect the zinc grounding mats to the Pipeline through Dairyland Decouplers; and to complete a final P/S survey consisting of both DC and AC voltages on the Pipeline. All readings taken of the DC P/S were more negative than - 0.85 volts (varied from - 0.918 to - 1.420 volts), except for test stations 10 through 12, which were - .480, -0 .383 and -0.398 volts respectively. AC readings varied from 0.440 to 10 volts at all stations. A recommendation was made to investigate the low readings at stations 10 through 12.

A report by CCIS, for the Pipeline P/S AC and DC voltage readings was conducted 3/3/2009 and March 24, 2009. Readings at all test stations from the gas plant to the Tie-in to Northwest Pipeline exceeded the - 0.85 volts (varied from - 0.985 to - 1.282 volts on 3/3/2009 and from - 0.945 to - 1.514 volts on 3/24/2009). The AC voltage readings varied from 0.006 to 0.435 volts on 3/3/2009 and from 0.145 to 9.49 volts on March 24, 2009. Stations 10 through 12 had P/S DC voltages of - 1.192, - 1.222 and - 1.155 volts, respectively on 3/3/2009 and - 1.316, - 1.325 and - 1.225 volts on 3/25/2009, respectively. This report showed that the Pipeline was cathodically protected within one (1) year of its construction.

A report by CCIS, for a corrosion inspection survey from test point 10 through 14 was conducted from April 5, 2010 to April 7, 2010. This study showed all potentials to be more negative than - 0.85 volts.

A report by Anode Systems Company dated December 4, 2013, summarized the above reports and stated that: The Pipeline-to-soil potential readings were taken on the sixteen inch (16") FBE coated sales Pipeline from the gas plant for a distance of a few miles. A thunderstorm and flash flooding prevented PEMC from finishing the survey on September 12th. The pipeline-to-soil potential readings on the 16" Pipeline east of the gas plant are good with potentials above - 0.85 volts. There are fourteen (14) zinc grounding mats and two zinc ribbon anodes connected to Dairyland HVAC Polarization Cells at test stations 1 through 14. The zinc grounding mats and two zinc ribbon anodes on the sixteen inch (16") Pipeline act as anodes for this Pipeline.

On September 29, 2013, PEMC's Dan Green took pipeline-to-soil potential readings on the 16" sales Pipeline starting at Williams Pipeline's Greentown Meter Station east of Highway 191 north of Moab. The survey was ended where Fidelity Exploration and Production facility is to be construct northwest of the sixteen inch (16") above ground Block Valve on Blue Hills Road. With one exception at the end of the Pipeline at the receiver at the Greentown Meter Station, the Pipeline is unprotected. It is unprotected from the 16" Block Valve where a tie-in had been planned to the Greentown Meter Station, as evidenced by pipeline-to-soil potential readings below - 0.85 volts. This is due to an insulating flange at the sixteen inch (16") Block Valve which had blocked the cathodic protection current from the zinc or magnesium anodes upstream of the Block Valve.

On October 25, 2013, Tariq Ahmad and technician, Lance Thomas, installed a bond across the sixteen inch (16") Block Valve that consists of a wire thermite welded across the insulating flange. Using a 10' piece of scrap bent "I" beam buried 4'. deep inside the gas plant. As a result, readings of 2.3 amps appear to provide adequate protection for the sixteen inch (16") Pipeline from the gas plant to the Greentown sales meter station. The "on" reading at the gas plant launcher was - 1.90 volts.

It was - 1.27 volts at the Block Valve, - 1.27 volts at the railroad and Hwy. 191 test station, - 1.31 volts at the Mill Creek test station, - 1.32 volts at the Willow Springs test station and - 1.46 volts at the receiver at the Williams Greentown meter station. The Universal ES-1 Utility rectifier and scrap steel anode will protection for the sixteen inch (16") Pipeline whenever it is plugged into the electric generator at the plant.

On December 7, 2013, a report was prepared and issued by Anode Systems Company, on the

Pipeline, stating:

"This report is to summarize the results of this year's cathodic protection survey of PEMC's 16" Paradox Pipeline from the outlet of the gas processing plant to the interconnect to Williams' pipeline at their Greentown Meter Station. On October 25th NACE Cathodic Protection Specialist, Hans Schmoldt conducted an ECDA (External Corrosion Direct Assessment) pipe-to-soil potential survey of the pipeline. Pipe-to-soil potential readings were taken at the outlet of the Paradox gas processing plant, at the block valve on Blue Hills Road, at the railroad and Highway 191 crossing, at the Mill Creek test station, at the Willow Springs Road crossing and at the interconnect to the Williams' Greentown Meter Station.

I am happy to report that all pipe-to-soil potential readings downstream from the Paradox Gas Processing Plant indicate that the pipe is well protected with pipe potentials above - 0.85 volts referenced to a T&R copper sulfate electrode. The pipe potential readings ranged from - 1.90 volts at the plant to a low of - 1.27 volts at the railroad and Highway 191 crossing and back up to - 1.46 volts at the Williams' Greentown Meter Station. The casing under the railroad and highway was isolated as evidenced by a - 0.63 volt potential reading. The test station numbers and coordinates for all test stations for this pipeline are referenced in a prior report dated March 2010.

Using the - 0.85 volt criterion established by the National Association of Corrosion Engineers (NACE) Standard RP01-69-92 as the minimum voltage for corrosion protection, the departing gas pipeline was protected on October 25, 2013, with a Universal ES-1 Rectifier set at 2.3 amps. No adjustments to the rectifier system on this pipeline is recommended."

27. PIPELINE CORROSION CONTROL: GENERAL

<u>See</u> Figure/Exhibit # 2 for the Pipeline test points and locations.

28. PIPELINE CORROSION CONTROL: TESTING

Per 49 C.F.R. §192.455, the external controls of the Pipeline are addressed as follows:

a. Having a FBE, Fusion Bonded Epoxy, coating that meets the requirements of 49 C.F.R. § 192.461. See APPENDIX "G" – Line Pipe Invoices & MTRs (Mill Test Reports) section.

b. Having cathodic protection along the pipeline that is designed to protect the subject pipeline from corrosion in accordance with 49 C.F.R. § 192, SUBPART I - Requirements for Corrosion Control within one (1) year of construction, as the construction was completed on 6/27/2008, the hydrostatic testing completed on 7/28/2008, and the corrosion survey in March 2009 showed satisfactory P/S voltage potentials.

29. PIPELINE CORROSION CONTROL: EXAMINATION OF BURIED PIPELINE WHEN EXPOSED

Whenever PEMC has knowledge that any portion of the buried Pipeline becomes exposed, the exposed portion must be examined for evidence of external corrosion if the FBE coating is deteriorated. If external corrosion requiring remedial action – under 49 C.F.R. §192.483 through §192.489 – is found, then PEMC shall investigate circumferentially and longitudinally beyond the exposed portion (by visual examination, indirect method, or both) to determine whether additional corrosion requiring remedial action exists in vicinity of the exposed portion. The following blanks will be filled out by the authorized PEMC employee or independent contractor, as designated by Dan Green, PEMC Compliance Officer. Once filled out and emailed to the Compliance Officer, Dan Green, at dfgreen1@dslextreme.com the authorized PEMC personnel or subcontractor will receive instructions for further action. This form will be filled out and kept in APPENDIX "G" – Cathodic Reports section.

The form is as follows:

BURIED PIPELINE CORROSION EXAMINATION

a. TIME/DATE OF EXAMINATION: ______________________________

b. BY(PRINT & SIGN NAME):__________________________________

c. LOCATION (DESCRIPTION):________________________________

LATITUDE(N):_____________, LONGITUDE(W):______________

d. IS FUSION BONDED EXPOXY, FBE, COATING DAMAGED (CIRCLE ONE): YES OR NO

e. IF FBE COATING IS DAMAGED THEN IS THERE EVIDENCE OF EXTERNAL

CORROSION (CIRCLE ONE): YES OR NO

f. IF YES, THEN ATTACH PHOTOGRAPH(S) & DESCRIBE THE CORROSION AT THE LOCATION ALONG THE (CIRCUMFERENCE AND LENGTH OF PIPELINE):______________________________

____

____

g. EMAILED TO PEMC COMPLIANCE OFFICER (DATE/TIME):__________

30. PIPELINE CORROSION CONTROL: MONITORING

The Pipeline, which is under cathodic protection, by using zinc anodes and by an impressed current generated by a rectifier, must be tested at least once each calendar year, but with intervals not exceeding fifteen (15) months to determine whether the cathodic protection meets the requirements of 49 C.F.R. §192.463 (see Appendix "D" of Subpart "I"). The negative (cathodic) voltage must be measured between the Pipeline surface and a saturated copper-copper sulfate half-cell contacting the electrolyte. The voltage thus determined must be more negative than - 0.85 volts. The survey shall be conducted by a designated and authorized PEMC employee or subcontractor, as determined by the PEMC Compliance Officer. This cathodic protection survey must include all test points, see PARADOX PIPELINE CATHODIC PROTECTION SURVEY in Figures/Exhibit # 3, or as designated in writing by the PEMC Compliance Officer. The survey will include DC and AC Pipeline to Soil Readings. A copy will be kept in APPENDIX "E" – Cathodic Reports, by the PEMC Compliance Officer and it will be his responsibility to schedule the survey, to review the records related to the survey, and schedule remedial work in compliance with 49 C.F.R. §192, if necessary.

S.N. DATE OF CORROSION SURVEY BY (NAME)__________________

a. ______________________________

b. ______________________________

c. ______________________________

d. ______________________________

31. PIPELINE CORROSION CONTROL: MONITORING/TESTING OF RECTIFIERS AND CONNECTIONS

All cathodic protection rectifiers on the Pipeline will be inspected, six (6) times each calendar year, but with intervals not exceeding two and one-half (2.5) months to insure that the rectifiers are properly operating and connected properly to the Pipeline. The form in APPENDIX "A" – Cathode Reports will be used by the PEMC Compliance Officer, Dan Green. Dan green will be required to (a) designating a PEMC personnel or independent contractor to complete the work, (b) scheduling the work, (c) reviewing the work completed, and (d) filing the form See Figures/Exhibit # 3 for the Paradox Pipeline Cathodic Protection Survey data.

If there are changes in regulatory requirements, the Pipeline shall receive any additional cathodic protection as required. It is the responsibility of the PEMC Compliance Officer, Dan Green, to ensure compliance in accordance with the 49 C.F.R. § 192 SUBPART I – Requirements for Corrosion Control.

32. CORROSION CONTROL PROCEDURES

In conformance with 49 C.F.R. § 192.605(b)(2) and 49 C.F.R. Part 192, Subpart I, PEMC hereby adopts the following corrosion control procedures described herein. The corrosion control tasks are organized by Federal Statutory Section as follows:

a. §192.455 Implementation Procedures: External Corrosion Control: Buried Installed After July 31, 1971: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0011	Conduct Close Interval Survey	7-10
0021	Measure Soil Resistivity	11-13

b. §192.459 Implementation Procedures: External Corrosion Control: Examination of Buried Pipeline When Exposed: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #

0151	Visual Inspection of Buried Pipe & Components When Exposed	35
0201	Visual Inspection of Pipe & Components for Mechanical Damage	35
0641	Visually Inspect Pipe & Components Prior to Installation	35
0171	Measuring External & Atmospheric Corrosion	37-38
0191	Measuring External & Atmospheric Corrosion	37-38

c. §192.461 Implementation Procedures: External Corrosion Control: Protective Coating: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0051	Installation of Exothermic Electrical Connections	18-19

d. §192.463 Implementation Procedures: External Corrosion Control: Cathodic Protection: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0011	Conduct Close Interval Survey	7-10

e. §192.465 Implementation Procedures: External Corrosion Control: Monitoring: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0001	Measure Structure-to-Electrolyte Potential, as to 465(a)	6
0031	Inspect/Monitor Galvanic Ground Beds-Anodes	14-15
0061	Inspect/Test Cathodic Protection Bonds, as to 465(c)	21-22
0081	Install Cathodic Protection Electrical Devices	24-26
0091	Trouble-Shoot In-Service Cathodic Protection	

	System, as to 465(c)	27-28
0101	Inspect Rectifier and Obtain Readings, as to 465(b)	29-30
0111	Maintain Rectifier	31-33

f. §192.467 Implementation Procedures: External Corrosion Control: Electrical Isolation: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0071	Inspect/Test Cathodic Electrical Isolation Devices	22-23

g. §192.469 External Corrosion Control: Test Stations: The test stations or other contact points used by PEMC to determine the adequacy of cathodic protection are located at ____, 2017.

h. §192.471 Implementation Procedures: External Corrosion Control: Test Leads: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0041	Installation & Maintenance of Mechanical Electrical Connections	16-17
0051	Installation of Exothermic Electrical Connections	18-19

i. §192.473 External Corrosion Control: Interference Currents: PEMC's program to minimize the effects interference currents is described as follows: ________, 2017.

j. §192.475 Implementation Procedures (Internal Corrosion Control: General): The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #

0161	Visual Inspection for Internal Corrosion	36
0181	Measuring Internal Corrosion	39-40

k. §192.477 Internal Corrosion Control Monitoring: No corrosive gas is being transported by the subject Pipeline? (Dan)

l. §192.479 Implementation Procedures: Atmospheric Corrosion Control: General: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0141	Visual Inspection for Atmospheric Corrosion	34

m. §192.481 Implementation Procedures: Atmospheric Corrosion Control: Monitoring: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0141	Visual Inspection for Atmospheric Corrosion	34
0171	Measuring External & Atmospheric Corrosion	37-38
0191	Measuring External & Atmospheric Corrosion	37-38

Note: The procedures referenced in Task 0141 shall be completed at least once every three (3) calendar years, but with intervals not exceeding thirty-nine (39) months. The last Visual Inspection for Atmospheric Corrosion was completed by PEMC on:

Summer 2018 (Dan)

n. §192.483 Remedial Measures General: PEMC has not replaced any segments of the subject Pipeline due to external corrosion.

o. §192.485 Implementation Procedures: Remedial Measures: Transmission Line: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0161	Visual Inspection for Internal Corrosion	36

Note: The procedures referenced in Task 0141 shall be completed at least once every three (3) calendar years, but with intervals not exceeding thirty-nine (39) months. The last Visual Inspection for Atmospheric Corrosion was completed by PEMC on:

Summer 2018

p. §192.487 Implementation Procedures: Remedial Measures: Distribution Lines Other Than Cast Iron or Ductile Iron Line: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0161	Visual Inspection for Internal Corrosion	36
0171	Measuring External & Atmospheric Corrosion	37-38
0181	Measure Internal Corrosion	39-40
0191	Measuring External & Atmospheric Corrosion	37-38

q. §192.489 Implementation Procedures: Remedial Measures: Cast Iron and Ductile Iron Pipeline: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0161	Visual Inspection for Internal Corrosion	36

r. §192.491 Corrosion Control Records: PEMC maintains records/maps to demonstrate the location of cathodically protected piping, cathodic protection facilities, galvanic anodes, and neighboring structures bonded to the cathodic protection system. PEMC also maintains records of each test, survey or inspection completed on the subject Pipeline. These records are located in the PEMC Office in Green River, Utah. A comparison of current values with historical values for the cathode protection inference bond is referenced in the following:

Task#	Operations and Maintenance Procedure	Page #
0161	Visual Inspection for Internal Corrosion	36

s. Appendix "D" to §192 Implementation Procedures (Criteria for Cathodic Protection and Determination of Measurements): The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0031	Inspect/Monitor Galvanic Ground Beds-Anodes	14-15
0091	Trouble-Shoot In-Service Cathodic Protection System	27-28

POLICIES AND PROCEDURES MANUAL SECTION NO. 7
DESIGN OF PIPELINE COMPONENTS UNDER § 192 SUBPART "D"

33. NORMAL OPERATIONS AND MAINTENANCE- PRESSURE STATIONS AND MEASURING DEVICES

In conformance with 49 C.F.R. § 192.605(b)(2) and 49 C.F.R. Part 192, Subpart D, PEMC hereby adopts the following Pressure Station and Measuring Device procedures. The Pressure Stations and Pressure Measuring Devices Statutory Section are described as follows:

a. §192.201 Implementation Procedures: Required Capacity of Pressure Relieving and Limiting Stations: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0301	Manually Operating or Closing Valves	46-47
0311	Adjust or Monitor Flow or Pressure Manual Valve Operation	48-49

b. §192.203 Implementing Procedures: Instrument, Control, and Sampling Pipe and Components: The procedures used by PEMC to implement this statutory requirement are located in Exhibit "A" in the following locations:

Task#	Operations and Maintenance Procedure	Page #
0221	Inspect, Test and Maintain Sensing Devices	43-45

POLICIES AND PROCEDURES MANUAL SECTION NO. 8
START-UP AND SHUT-DOWN PROCEDURES

34. NORMAL OPERATIONS AND MAINTENANCE: START-UP AND SHUT DOWN PROCEDURES (§ 192.605(5))

a. Required Safety Equipment: The PEMC Field Supervisor shall have the following safety equipment in working condition in his vehicle at all times, be proficient in its usage, and ensure that all other PEMC personnel are trained and proficient in their usage:

i. A tested and functional gas monitoring instrument that can detect LEL/Carbon Dioxide/Oxygen/Methane;

ii. An extra charged battery for the cell phone;

iii. A fully functional and fully charged, Self-Contained Breathing Apparatus (SCBA);

iv. A complete first aid kit;

v. Fully charged and functional 10-lb Fire Extinguisher of the ABC type; and

vi. At least two portable 2-way radios fully charged with charger.

b. Shut-Down Procedures: (See Figure/Exhibit #1 Map of Paradox Pipeline-OPID 39049)

i. Power off compressor at gas plant and record outlet pressure and time:

Date/time: _________________, psig:__________.

ii. Identify location on a map of emergency incident scene, if not already known;

iii. If the emergency incident scene is between the outlet of compressor at the gas plant and the north side of the block valve, then go to ¶ 5(h)(v) below;

iv. If the emergency incident scene is located between the block valve and the outlet of the 16" line at the tie-in to Northwest Pipeline, then go to ¶ 5(h)(ix) below;

v. Close valve between the outlet of the compressor and the inlet of the 16" gas Pipeline and record pressure reading (and time taken), downstream of closed valve (towards block valve);

Date/time: ____________, psig_________.

vi. Close the block valve and record pressure gauge reading (and time taken), on the upstream side of the closed block valve (towards gas plant)

Date/time: ____________, psig_________.

Record the pressure gauge reading (and time taken), on the downstream side of the closed block valve (towards tie-in to Northwest Pipeline)

Date/time: ____________, psig_________.

vii. Close valve between the outlet of the 16" Pipeline line and the meter located at the tie-in to Northwest Pipeline and record pressure gauge reading (and time taken) on upstream side of closed valve (towards block valve).

Date/time: ____________, psig_________.

Record the pressure gauge reading (and time taken), on the downstream side of the closed valve (towards meter)

Date/time: ____________, psig_________.

viii. Call the PEMC Compliance Officer, Dan Green, at (775) 636-3132 and relay information on location, time and pressures.

ix. Close valve between the outlet of the 16" Pipeline and the meter located at the tie-in to Northwest Pipeline and record pressure gauge reading (and time taken) on upstream side of closed valve (towards block valve).

Date/time: ____________, psig_________.

Record the pressure gauge reading (and time taken), on the downstream side of the closed valve (towards meter)

Date/time: ____________, psig________.

x. Close the block valve and record pressure gauge reading (and time taken), on the upstream side of the closed block valve (towards gas plant)

Date/time: ____________, psig________.

Record the pressure gauge reading (and time taken), on the downstream side of the closed block valve (towards tie-in to northwest pipeline)

Date/time: ____________, psig________.

xi. Close the valve between the outlet of the compressor and the inlet of the 16" the Pipeline and record pressure reading (and time taken), downstream of closed valve (towards block valve).

Date/time: ______________, psig________.

xii. Call the PEMC Compliance Officer Dan Green at (775) 636-3132, and relay any new information on the time, pressures. Get further instructions.

c. Start-Up Procedures: To restart the Pipeline, ensure that either Tariq Ahamd or Dan Green is present and then follow the steps in the paragraph immediately above in the reverse order.

35. PERIODIC REVIEW TO DETERMINE EFFECTIVENESS AND ADEQUACY OF PROCEDURES (§192.605(b)(8)):

See generally the requirements in ¶ 14 ¶ 15 above.

36. ROUTINE TESTING AND INSPECTION (§ 192.605(b)(10)

See generally the requirements in ¶ 13 and ¶ 14 above.

37. CONTROL ROOM MANAGEMENT (§ 102.605(b)(12))

There is no control room for this Pipeline and there is no SCADA system installed at present.

The control room for Williams can be reached at telephone # 801-584-6948, and can give real time readings for pressure and flow at the TIE-IN TO NORTHWEST PIPELINE meter, as marked on Map of Figure/Exhibit # 1.

POLICIES AND PROCEDURES MANUAL SECTION NO. 9
ADDRESSING AN EMERGENCY INCIDENT

38. EMERGENCY INCIDENT: DEFINED (49 C.F.R. §192.615(a)(1))

See Definition of Emergency Incident contained in ¶ 16 above.

39. EMERGENCY INCIDENT: REPORTING (§ 192.615(a)(1))

a. Who Can Report: Any individual or organization.

b. Reporting Procedures: See Reporting Procedures contained in ¶ 17 above.

c. Making Conditions Safe: After the initial report is made, and to the maximum extent safely possible, actual or potential hazards to life and property should be minimized. (§ 192.615(a)(7))

40. EMERGENCY INCIDENT: INITIAL STEPS TO TAKE DURING AN EMERGENCY INCIDENT

If the emergency reporter is a PEMC employee or subcontractor, or the PEMC Field Supervisor upon his arrival at the emergency incident scene, that person or persons will take immediate steps to protect life and property in the vicinity of the Pipeline by:

a. First Emergency Incident Contact: Call 911;

b. Determining the Scope of an Emergency Incident: Determine from a safe location (or from scada when installed), the location of AN Emergency Incident and inform the PEMC Compliance Officer, Dan Green at (775) 636-3132, of the emergency incident location. In the verbal report to the PEMC Compliance Officer state that either:

   i. That the emergency reporter has determined that it is safe to access the Pipeline valves to shutoff or isolate the Pipeline segment, then go to ¶ _ below; or

   ii. That the emergency reporter has determined that it is not safe to, does not know how to, or can't access the Pipeline valves to shutoff or isolate the

Pipeline segment, then will go to ¶ _ .

c. Additional Reporting Procedures: See Reporting Procedures contained in ¶ _ .

41. **EMERGENCY INCIDENT: TRAINING (49 C.F.R. §192.615(a)(3)):**

a. Training Requirement to Implement the Emergency Plan: In compliance with 49 C.F.R. §192.615(b)(2),within ten (10) days of review and approval of this Policy & Procedures Manual, the Operator shall provide training to PEMC employees to determine if these employees know and understand emergency incident procedures.

b. Review Employee Activities to Determine if Procedures Were Effective: In compliance with 49 C.F.R. §192.615(b)(2), the Operator shall test all PEMC employees to determine the ability of those employees to follow the policies and procedures adopted in this Manual in order to address a future emergency incident. This test shall be timed and the results discussed with each individual employee. If additional training is required, it will be completed.

42. **EMERGENCY INCIDENT: LIAISON WITH LOCAL OFFICIALS (49 C.F.R. §192.615(a)(2)):**

a. PEMC Contact With Local Officials: In accordance with 49 C.F.R. §615(c)(2), (3) and (4), PEMC shall meet with each local official listed immediately below and acquaint each local official with the ability of PEMC to address any Pipeline Emergency Incident. PEMC shall determine the type of Pipeline that Emergency Incident which will require PEMC to notify each local official type. During this meeting, the PEMC representative will also determine how each local official type can assist PEMC in an addressing particular kind of Emergency Incident. PEMC and local government officials shall then jointly develop a "mutual assistance plan" to identify and minimize hazards to life and property as a result of an Emergency Incident. The PEMC Compliance Officer, Dan green, shall discuss the results of these meetings with all PEMC personnel and independent contractors.

Moab, Utah Mayor: Emily Niehaus (435) 259-5121
Green River, Utah Mayor: Travis Bacon (435) 589-6447
Moab, Utah Police Chief: Jim Winder (435) 259-8938
Grand County Sherriff: Greg Funk (435) 381-2404
Moab, Utah Fire Chief: T.J. Brewer (435) 259-5557

Green River Fire Chief: Philip Engleman (435) 491-0564

________: Initials of Operator; __________; Date Completed

b. PEMC Personnel Contact With Local Officials: In accordance with 49 C.F.R. § 615(c)(1), The PEMC personnel shall contact the following local officials or otherwise determine what services are provided by the office of each official:

Moab, Utah Mayor: Emily Niehaus (435) 259-5121
Green River, Utah Mayor: Travis Bacon (435) 589-6447
Moab, Utah Police Chief: Jim Winder (435) 259-8938
Grand County Sherriff: Greg Funk (435) 381-2404
Moab, Utah Fire Chief: T.J. Brewer (435) 259-5557
Green River Fire Chief: Phillip Engleman (435) 491-0564

________: Initials of Employee; __________; Date Completed

c. Emergency Incident Coordination – Local Agencies & Utility Providers: The "911" system is designed to coordinate local agency response, thus the local agencies will be notified by the 911 system. PEMC will inform the following local officials in Moab and/or Green River, Utah, as well as the other local gas pipeline operators of the location of the Pipeline and provide these operators with a copy of the Emergency Incident Plan.

43. EMERGENCY INCIDENT: REPORT CONTENT (49 C.F.R. §192.615(a)(3))

a. Required Initial Emergency Incident Report Content: The following information should be provided to each person listed above: (a) your name and phone number, (b) a description of the Emergency Incident, (c) approximate location of the Emergency Incident, (d) date and time of the Emergency Incident, (e) number of fatalities if any, and (f) any other relevant facts. (A written summary of the emergency incident is also required if the emergency reporter is an employee of PEMC.)

Within forty-eight (48) hours after the confirmed discovery of an Emergency Incident, PEMC personnel shall revise or confirm its initial telephonic notice with an estimate of the amount of natural gas released, an estimate of the number of fatalities and injuries, and all other significant facts that are known by the operator that are relevant to the cause of the Emergency Incident or extent of the damages associated therewith. If there are no changes or revisions to the initial report, the operator must confirm the estimates in its initial report.

b. Emergency Incident Additional Notifications:

i. For PEMC personnel other than Dan Green, the PEMC Compliance Officer, or any subcontractor personnel, notice must be provided to Dan Green at __.

ii. Dan Green, the PEMC Compliance Officer, will then contact PEMC President, Tariq Ahmad and report the "emergency incident."

iii. Tariq Ahmad will then contact the National Response Center either by telephone to 800-424-8802 (in Washington, DC, 202 267-2675) or electronically at http://www.nrc.uscg.mil and he shall provide the following information:

- Names of Operator (PEMC), name of the person making the report of the Emergency Incident, and the Emergency Incident reporter's telephone numbers.

- The location and time of the Emergency Incident.

- The number of fatalities and personal injuries, if any.

- All other significant facts that are known by PEMC that are relevant to the cause of the incident or extent of the damages.

c. Notices to Date: As of the date of this Manual Update (December 14, 2018), there have been no reportable "emergency incidents" associated with the subject Pipeline and thus there have been no reports to the National Response Center.

44. EMERGENCY INCIDENT: REQUIRED PERSONNEL AND EQUIPMENT (49 C.F.R. §192.615(a)(4))

a. Personnel to Address an Emergency Incident: After the initial reporting of the Emergency Incident, PEMC Compliance Officer, Dan Green, will take responsibility for overseeing PEMC's response to an Emergency Incident.

b. Required Safety Equipment to Address an Emergency Incident: The PEMC Field Supervisor shall have the following safety equipment in working condition in his vehicle at all times, be proficient in its usage, and ensure that all other PEMC employees are trained and proficient in their usage:

i. A tested and functional gas monitoring instrument that can detect LEL/Carbon Dioxide/Oxygen/Methane;

ii. An extra charged battery for the cell phone;

iii. A fully functional and fully charged, Self-Contained Breathing Apparatus (SCBA);

iv. A complete first aid kit;

v. Fully charged and functional 10-lb Fire Extinguisher of the ABC type; and

vi. At least two portable 2-way radios fully charged with charger.

45. EMERGENCY INCIDENT: PRIORITY OF PEOPLE OVER PROPERTY (49 C.F.R. §192.615(a)(5))

In responding to an Emergency Incident, people are to be given priority over property.

46. EMERGENCY INCIDENT: SHUT-OFF PROCEDURES (49 C.F.R. §192.615(a)(6))

a. Shut-Down Procedures: (See Figure/Exhibit #1 Map of Paradox Pipeline-OPID 39049)

i. Power off compressor at gas plant and record outlet pressure and time:

Date/time: ________________, psig:_________.

ii. Identify location on a map of emergency incident scene, if not already known;

iii. If the emergency incident scene is between the outlet of compressor at the gas plant and the north side of the block valve, then go to ¶ 46(a)(v) below;

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iv. If the emergency incident scene is located between the block valve and the outlet of the 16" line at the tie-in to Northwest Pipeline, then go to ¶ 46(a)(ix) below;

v. Close valve between the outlet of the compressor and the inlet of the 16" gas Pipeline and record pressure reading (and time taken), downstream of closed valve (towards block valve);

Date/time: _____________, psig_________.

vi. Close the block valve and record pressure gauge reading (and time taken), on the upstream side of the closed block valve (towards gas plant)

Date/time: _____________, psig_________.

Record the pressure gauge reading (and time taken), on the downstream side of the closed block valve (towards tie-in to Northwest Pipeline)

Date/time: _____________, psig_________.

vii. Close valve between the outlet of the 16" Pipeline line and the meter located at the tie-in to Northwest Pipeline and record pressure gauge reading (and time taken) on upstream side of closed valve (towards block valve).

Date/time: _____________, psig_________.

Record the pressure gauge reading (and time taken), on the downstream side of the closed valve (towards meter)

Date/time: _____________, psig_________.

viii. Call the PEMC Compliance Officer, Dan Green, at (775) 636-3132 and relay information on location, time and pressures.

ix. Close valve between the outlet of the 16" Pipeline and the meter located at the tie-in to Northwest Pipeline and record pressure gauge reading (and time taken) on upstream side of closed valve (towards block valve).

Date/time: ____________, psig________.

Record the pressure gauge reading (and time taken), on the downstream side of the closed valve (towards meter)

Date/time: ____________, psig________.

x. Close the block valve and record pressure gauge reading (and time taken), on the upstream side of the closed block valve (towards gas plant)

Date/time: ____________, psig________.

Record the pressure gauge reading (and time taken), on the downstream side of the closed block valve (towards tie-in to northwest pipeline)

Date/time: ____________, psig________.

xi. Close the valve between the outlet of the compressor and the inlet of the 16" the Pipeline and record pressure reading (and time taken), downstream of closed valve (towards block valve).

Date/time: ________________, psig________.

xii. Call the PEMC Compliance Officer Dan Green at (775) 636-3132, and relay any new information on the time, pressures. Get further instructions.

xiii. The PEMC Compliance Officer, Dan Green, will ask if any additional information is known by the emergency reporter. If the emergency reporter is an employee or subcontractor of PEMC, the Emergency Incident reporter will then be given additional instructions, if necessary, such as to coordinate with local 911 emergency command. The Emergency Incident reporter, and/or PEMC Field Supervisor upon his arrival at the emergency incident scene, will remain at their present communication location, if it is safe to do so, or will inform PEMC Compliance Officer, Dan Green, at (775) 636-3132 of his/her new physical location.

xiv. The Emergency Incident reporter, and/or PEMC Field Supervisor upon arrival at the emergency scene, will then provide emergency incident notification to the National Response Center and the Utah Division of Public Utilities, Lead Pipeline Safety Engineer; & Compliance Officer.

xv. Pursuant to 49 C.F.R. §192.615(a)(9), when PEMC determines that it is safe to do so, the Pipeline may be restored to service. See Normal Pipeline Start-Up Procedures in ¶ 15 below.

47. EMERGENCY INCIDENT: COMMUNICATION MAINTENANCE (49 C.F.R. §192.615(a)(8))

a. Once an emergency incident has been declared, and the persons listed in ¶ __ above have been contacted, the emergency reporter will stay in cellular phone contact with the PEMC Field Supervisor until he is physically present on the Emergency Incident scene.

b. The Emergency Incident reporter will also maintain communication with 911, or other appropriate emergency responding authority, via cellular telephone.

c. If an outside regulatory agency has assumed control of the emergency incident scene, and the Emergency Incident reporter is an employee of PEMC, the Emergency Incident reporter will remain physically present at the emergency incident scene and will assist the outside regulatory agency with any information needed.

48. EMERGENCY INCIDENT: POST-INCIDENT INVESTIGATION

After an Emergency Incident has been declared, and appropriate actions have been taken by PEMC and/or third parties, including contacting the local emergency authorities, the National Response Center, and etc., to neutralize the Emergency Incident, then an investigation of the Emergency Incident shall be initiated by the PEMC Compliance Officer, Dan Green, and any recommendations shall to address any issues shall be implemented before the restart of the Pipeline. The following investigative steps shall be taken:

a. Appropriate samples of the failed material, if any, such as a section of pipe, a relief valve, or a weld, shall be sent to a third party approved metallurgical laboratory for a cause of failure, and

b. All actions taken by PEMC personnel or independent contractors which led to the Emergency Incident, will be recorded and reviewed; and

c. If a material defect or corrosion caused the emergency incident, then a proper material and/or corrosion control method will be chosen; and

d. If the Emergency Incident was caused or exacerbated by improper or delayed actions by PEMC employees or subcontractors, then suitable changes will be made in this Manual for these specific tasks and there will be remedial training conducted for the PEMC personnel concerned; and

e. A formal report will be written by the PEMC Compliance Officer, Dan Green, which will be reviewed by the management of PEMC, and will be filed in APPENDIX "E" – Summary section. This report will include the following in the findings of fact section:

   i. Date of Emergency Incident:_______________.

   ii. Cause and material details associated with the emergency incident (whether human, device failure, corrosion and/or other); and

   ____
   ____
   ____
   ____

   iii. Detail of changes made by PEMC: (including procedure, design, material, upgrading of corrosion coating/protection, downgrading of future normal operating pressure, etcetera); and

   ____
   ____
   ____
   ____
   ____

   iv. All losses: (injuries to persons or deaths, material replacement, loss of gas and other miscellaneous costs, and date of startup of Pipeline; and

   ____
   ____
   ____

v. Date, name and author of report: ______________________________
____

vi. A certification by the PEMC Compliance Officer, stating: "I, Dan Green, the PEMC Compliance Officer, do state, that I've reviewed the above Emergency Incident report, have determined the cause or causes of the Emergency Incident, and have made appropriate changes to operating procedures and training based on the recommendations of this report."

49. EMERGENCY INCIDENT: PUBLIC AWARENESS (49 C.F.R. §616(e), (f), (g) and (h)):

a. Public Awareness: In conjunction with 49 C.F.R. §192.616(e), (f) and (g), the PEMC shall create a newspaper advertisement and have that advertisement placed in every newspaper to notify all municipalities, school districts, businesses and residents near the Pipeline location. The advertisement shall be in both English and Spanish. A copy of this advertisement shall be emailed to each municipality and school district in addition to the newspaper placement. Public Awareness is discussed in detail in Exhibit "__" of this Manual.

b. Submission to PHMSA (where required) & State Agencies (where required): In accordance with 49 C.F.R.§192.616(h), and upon a request from PHMSA and/or a State Agency, PEMC shall provide a copy of its Policies & Procedures Manual to PHMSA and/or relevant State Agency.

50. EMERGENCY INCIDENT: RESTART PROCEDURES

a. When given the permission to pressure up the Pipeline by the PEMC Compliance Officer, Dan Green, or by the PEMC Field Supervisor, Rodney Nugent, then the designated PEMC personnel should do the following: (See Figure/Exhibit # 1)

i. TURN ON COMPRESSOR AT GAS PLANT, SET OUTLET SHUTOFF OF COMPRESSOR AT A PRESSURE 750 psig, THEN AFTER STABILIZATION OF COMPRESSOR, RECORD OUTLET PRESSURE AND TIME:

DATE/TIME: ______________________, PSIG_________.

---

ii. OPEN FULLY THE VALVE BETWEEN THE OUTLET OF THE COMPRESSOR AND THE INLET OF THE SIXTEEN INCH (16") GAS PIPELINE AND RECORD PRESSURE READING (AND TIME TAKEN), DOWNSTREAM OF OPENED VALVE (TOWARDS BLOCK VALVE(S)):

DATE/TIME: ______________________, PSIG________.

iii. RECORD THE PRESSURE GAUGE READING (AND TIME TAKEN), ON UPSTREAM AND DOWNSTREAM SIDE OF BLOCK VALVE(S):

DATE/TIME: ______________________, PSIG________.

UPSTREAM PRESSURE (TOWARD THE GAS PLANT)

DATE/TIME: ______________________, PSIG________.

iv. DOWNSTREAM PRESSURE (TOWARDS TIE-IN TO NORTHWEST PIPELINE)

DATE/TIME: ______________________, PSIG________.

v. THEN OPEN BLOCK VALVE(S) FULLY.

vi. LOCATE THE VALVE BETWEEN THE OUTLET OF THE SIXTEEN INCH (16") PIPELINE AND THE METER LOCATED AT THE TIE-IN TO NORTHWEST PIPELINE (AS SHOWN ON MAP, OF FIGURE/EXHIBIT # 1 ON NEXT PAGE). IF THE SAID VALVE IS OPEN, THEN CLOSE THE SAME AND MEASURE PRESSURE ON THE UPSTREAM SIDE OF +THIS VALVE (TOWARDS THE BLOCK VALVE(S)).

DATE/TIME: ______________________, PSIG________.

vii. WHEN THE PRESSURE REACHES 750 psig, HOLD FOR THIRTY (30) MINUTES AT THIS PRESSURE AND THEN OPEN THE VALVE. IF THE PRESSURE BUILDS UP TO 800 psig, THEN NOTIFY THE PEMC COMPLIANCE OFFICER, DAN GREEN, AT (775) 636-3132, AND WAIT FOR FURTHER INSTRUCTIONS. IF THE PRESSURE IS AT LEAST 750 psig AND GREATER AND LESS THAN 800 psig THEN THE PIPELINE IS IN ITS NORMAL OPERATING STATE AND GAS IS FLOWING TOWARD THE NORTHWEST GAS TRANSMISSION PIPELINE. NOTIFY THE COMPLIANCE OFFICER OR PEMC FIELD SUPERVISOR OF YOUR FINDINGS.

See Map, Figure # 1.

51. EMERGENCY INCIDENT: POST-INCIDENT PIPELINE TESTING

a. When given the permission to shutdown and isolate a Pipeline segment by the PEMC Compliance Officer, Dan Green, or by the PEMC Field Supervisor, Rodney Nugent, then the designated PEMC employee will do the following:

i. SHUTOFF THE COMPRESSOR AT GAS PLANT AND RECORD THE OUTLET PRESSURE AND TIME:

DATE/TIME: ______________________, PSIG________.

ii. CLOSE FULLY THE VALVE BETWEEN THE OUTLET OF THE COMPRESSOR AND THE INLET OF THE SIXTEEN INCH (16") GAS PIPELINE AND RECORD THE PRESSURE READING (AND TIME TAKEN), DOWNSTREAM OF CLOSED VALVE (TOWARDS BLOCK VALVE):

DATE/TIME: ______________________, PSIG________.

iii. SHUT OFF VALVE BETWEEN THE OUTLET OF THE SIXTEEN INCH (16") PIPELINE AND THE METER LOCATED AT THE TIE-IN TO NORTHWEST PIPELINE (AS SHOWN ON MAP IN FIGURE # 1) AND RECORD PRESSURE GAUGE READING (AND TIME TAKEN) ON UPSTREAM SIDE OF CLOSED VALVE (TOWARDS BLOCK VALVE(S)).

DATE/TIME: ______________________, PSIG________.

iv. THEN CLOSE BLOCK VALVE(S) FULLY AND RECORD PRESSURE GAUGE READING (AND TIME TAKEN), ON UPSTREAM AND

DOWNSTREAM SIDE OF BLOCK VALVE(S):

UPSTREAM PRESSURE (TOWARDS GAS PLANT)

DATE/TIME: ______________________, PSIG_________.

DOWNSTREAM PRESSURE (TOWARDS TIE-IN TO NORTHWEST PIPELINE)

DATE/TIME: ______________________, PSIG_________.

v. NOTIFY THE PEMC COMPLIANCE OFFICER OR PEMC FIELD SUPERVISOR ABOUT YOUR FINDINGS

POLICIES AND PROCEDURES MANUAL SECTION NO. 10
ABNORMAL OPERATIONS

52. ABNORMAL OPERATIONS: REQUIRED REVIEW (49 C.F.R. §195.605(c)(4)):

Pursuant to 49 C.F.R. §195.605(c)(4), PEMC shall review – within five (5) business days of any emergency incident – or more often if required by either applicable state or federal regulations – any work completed on the Pipeline to determine the effectiveness and adequacy of the procedures used during "abnormal" operation and maintenance. Where a procedural deficiency is found, modified procedures will be adopted to address the deficiency. The following process will be used to complete this task:

53. ABNORMAL OPERATIONS: GENERAL DEFINITIONS:

Abnormal Operations are defined as a pressure deviation of twenty percent (20%) from the normal operating pressure of the Pipeline of 750 psig; that is any pressure higher than 960 psig or a pressure of less than 640 psig, If either extreme occurs, then immediate action is required.

A pressure greater than 960 psig indicates a higher than normal pressure from the compressor at the natural gas plant, prior to the regulated section of the Pipeline, that is at the outlet of the said compressor at the point marked as OUTLET OF COMPRESSOR NORTH END OF SIXTEEN INCH (16") PIPELINE. <u>See</u> the Map in Figure/Exhibit # 1.

A pressure lower then 640 psig indicates a possible problem(s), such as a leak in the pipeline, a lower than normal set pressure on the compressor, a compressor shutoff, an opened pressure relief valve, or a leak in the Pipeline and or its attachments.

After taking immediate actions to address an abnormal condition, contact the PEMC Compliance Officer, Dan Green, to discuss the source of the problem and the direction to be taken.

54. ABNORMAL OPERATIONS: HIGHER THAT ALLOWABLE PRESSURE (> 960 psig):

The normal operating pressure of this pipeline is set at 750 psig and if it increases by twenty percent (20%) or more, to 960 psig or more, the greater pressure was the cause for a Pipeline shutdown. The PEMC Compliance Officer, Dan Green, must go to the gas plant to address this issue. (See the Map on Figure/Exhibit # 1) At the gas plant, the PEMC Compliance Officer, Dan Green, must make the following inquiries and/or take the following action:

a. Gas Plant Manager Inquiry: Ask of gas plant supervisor if there are any problems with the compressor, and if the answer is "yes," then have the gas plant personnel fix problem. Then notify the PEMC Compliance Officer, Dan Green, after the compressor has been started, tested. Set the outlet pressure at 750 psig. Determine whether the outlet pressure remains at 750 psig, and if so, turn-off at the required set off pressure of 830 psig.

b. Restarting the Pipeline After Correction of Abnormal Condition: Once any compressor problems are resolved, then complete the following tasks:

i. Open valve between the OUTLET OF COMPRESSOR NORTH END OF SIXTEEN INCHES (16") PIPELINE and the compressor outlet.

ii. Open BLOCK VALVE.

iii. Wait until pressure builds up to 750 psig and hold for one hour.

iv. Then open valve between the outlet of the sixteen inch (16") Pipeline and the meter located at the TIE-IN TO NORTHWEST PIPELINE.

55. **ABNORMAL OPERATIONS: LOWER THAN ALLOWABLE PRESSURE (< 640 psig) (North Side From the Outlet of the Compressor to the Block Valve):**

The normal operating pressure of this pipeline is set at 750 psig, and if it decreases by twenty percent (20%) or more, to 640 psig or less, and the lower pressure was the cause for the pipeline shutdown The PEMC Compliance Officer, or his designee, must go to the gas plant to address the issue. (see Map on Figure/Exhibit # 1):

a. Gas Plant Manager Inquiry: Ask of gas plant supervisor if there have been any problems with the compressor, and if the answer is "yes,"determine if the compressor was the cause of the low pressure problem. Then have the gas plant personnel fix the compressor problem.

b. Restarting the Pipeline After Correction of Abnormal Condition: After the compressor has been fixed and tested, and the PEMC Compliance Officer, Dan

Green, has been notified and approved the action, restart the Pipeline with an outlet pressure at 750 psig. Then if the pressure remains at 750 psig, turn off at the required set-off pressure, 800 psig. With the repair of the compressor problem solved, the proceed as shown below. If the compressor did not solve the low pressure problem, then start the restart process from the beginning.

c. Take the multi gas monitor, that can monitor Lower Explosive Limit, Oxygen and Methane for safety, and examine all relief valves on the Pipeline.

d. If a relief valve has malfunctioned then notify the PEMC Compliance Officer, Dan Green, and obtain an "Authorization for Maintenance and Repair" form from him. After the relief valve has been replaced by a PEMC employee or authorized independent contractor.

e. Ask the gas plant supervisor to start compressor and ensure outlet pressure is set at 750 psig. If the outlet pressure remains at 750 psig, turn off at the required set-off pressure of 830 psig. If the relief valve replacement solved the pressure problem then proceed as shown below.

f. Inform the PEMC Compliance Officer, Dan Green, and obtain an "Authorization for Maintenance and Repair Record" from him in order to perform a gas leakage survey and possible Pipeline repair. If a leak is detected, have the leak repaired or the section of the Pipeline replaced by a PEMC employee or independent contractor. Then proceed as shown below.

g. Ask the gas plant supervisor to start compressor and ensure outlet pressure is set at 750 psig and if the pressure remains at 750 psig, then turn off at the required set-off pressure of 830 psig. Then proceed as shown below.

h. Open valve between the OUTLET OF COMPRESSOR NORTH END OF 16" LINE and the compressor outlet. Then proceed as shown below.

i. Open BLOCK VALVE. Then proceed as shown below.

j. Wait until pressure builds up to 750 psig and hold for one hour. Then proceed as shown below.

k. Then open valve between the outlet of the sixteen inch (16") Pipeline and the meter located at the TIE-IN TO NORTHWEST PIPELINE.

56. ABNORMAL OPERATIONS: LOWER THAN ALLOWABLE PRESSURE (< 640 psig) (South Side From Block Valve south to the Tie-in to Northwest Pipeline):

The normal operating pressure of this pipeline is set at 750 psig and if the operating pressure decreases by twenty percent (20%) or more, 640 psig or less, and the lower pressure was the cause for the shutdown, then the PEMC Compliance Officer, Dan Green, or his designee, must go to the gas plant to address the issue. Go to ¶ 26(a). (see Map on Figure/Exhibit # 1):

a. Gas Plant Manager Inquiry: Ask the gas plant supervisor if there have been any problems with the compressor, and if the answer is "yes," determine if the compressor was the cause of the low pressure problem. Then have gas plant personnel fix the compressor problem.

b. Restarting the Pipeline After Correction of Abnormal Condition: After the compressor has been fixed and tested, and the PEMC Compliance Officer has been notified and approved the action, restart the Pipeline with and the outlet pressure set at 750 psig. If the pressure remains at 750 psig, turn off at the required set-off pressure of 800 psig. If the repair to the compressor solved the low pressure problem, the compressor shutoff pressure was set too low or the compressor had turned off. If the pressure problem is solved, then proceed as shown below.

c. Take the multi gas monitor, that can monitor Lower Explosive Limit, Oxygen and Methane for safety, and examine all relief valves on the pipeline.

d. If a relief valve has malfunctioned then notify the PEMC Compliance Officer, Dan Green, and obtain an Authorization for Maintenance and Repair form from him. After the relief valve has been replaced by a PEMC employee or authorized subcontractor, then proceed as shown below.

e. Ask the gas plant supervisor to start compressor and ensure outlet pressure is set at 750 psig and then remains at 750 psig, and turn off at the required set-off pressure of 800 psig. If the relief valve replacement solved the problem then proceed to ¶ 26(g) below, otherwise proceed as shown below.

f. Inform the PEMC Compliance Officer and obtain an Authorization for Maintenance and Repair form from the PEMC Compliance Officer in order to complete a Pipeline gas leakage survey and complete a possible Pipeline repair. If a leak is detected then have the Pipeline section repaired/replaced by a PEMC employee or authorized subcontractor, then proceed as shown below.

g. Ask gas plant supervisor to start compressor and ensure outlet pressure is set at 750 psig. If the pressure remains at 750 psig, turn off at the required set off-pressure of 830 psig. Then proceed as shown below.

h. Open valve between the OUTLET OF COMPRESSOR NORTH END OF 16" LINE and the compressor outlet. Then proceed as shown below.

i. Open BLOCK VALVE. Then proceed as shown below.

j. Wait until pressure builds up to 750 psig and holds at that pressure for one hour. The proceed as shown below.

k. Then open valve between the outlet of the sixteen inch (16") line and the meter located at the TIE-IN TO NORTHWEST PIPELINE.

57. ABNORMAL OPERATIONS: PERIODIC REVIEW OF SHUT-DOWN PROCEDURES AND CORRECTIVE ACTION BY THE PEMC COMPLIANCE OFFICER:

This periodic review is a part of ¶ 13, ¶ 14 and ¶ 23 above. In ¶ 13 and ¶ 14, the procedures/repairs/tasks are to be reviewed within ninety (90) days of the work completion date, and updated within one-hundred eighty (180) days of the said date.

58. ABNORMAL OPERATIONS: SAFETY-RELATED CONDITIONS:

See generally ¶ 23 above.

59. FILING SAFETY-RELATED CONDITION REPORTS:

See generally ¶ 23 above.

POLICIES AND PROCEDURES MANUAL SECTION NO. 11
MAINTENANCE AND REPAIR RECORD

60. AUTHORIZATION FOR MAINTENANCE AND REPAIR AND RECORD THEREOF:

The PEMC Compliance Officer will, after receiving a verbal, telephonic or email request from PEMC management or a worker – defined as an authorized PEMC employee or qualified PEMC subcontractor), who is required to complete periodic required maintenance, such as checking of pressure relief valves, valve maintenance, for abandonment and deactivation, or any other repairs according to APPENDIX "A" - Operations and Maintenance Procedures Task Manual[6] – will ensure a complete check on pressure relief values is completed at least every twelve (12) months.

a. Authorization of Maintenance & Repair Tasks:

The PEMC Compliance Officer shall authorize all maintenance and repair tasks via the submission of an AUTHORIZATION FOR MAINTENANCE AND REPAIR FORM, shown below, and transmit to the PEMC Field Supervisor by email, the completed said form, within five (5) working days of the request, not including Saturday, Sunday or other authorized company holiday, from the date of the initial request. Maintenance and repair work cannot begin until said email is received by the PEMC Field Supervisor and an approval is granted. After the completion date of the described maintenance/repair tasks the individual or organization completing these repairs of tasks will:

i. Fill out the COMPLETION SECTION of the same form and within the same five (5) day period, as described below, after the date of the completion, email a copy of the fully filled out form to the PEMC Field Supervisor, Dan Green, and retain a copy of the same in APPENDIX "G" – Required Periodic

[6] NOTE: FOR WELDING AND NON-DESTRUCTIVE TESTING USE LATEST EDITION OF API 1104.

Operations, Maintenance and Inspection Records.[7]

AUTHORIZATION FOR MAINTENANCE AND REPAIR FORM RECORD #______ .

TODAY'S DATE:______________________________

DATE OF INITIAL REQUEST:____________________

IS THIS WORK IN AN EXCAVATED TRENCH? (CIRCLE ONE): YES OR NO.

IS THIS WORK FOR (CIRCLE ONE): (a) an EMERGENCY SHUTDOWN OR SAFETY RELATED CONDITION or (b) an OR ABNORMAL SHUTDOWN.

GENERAL DESCRIPTION OF WORK:____________________
____
____

WORK TO START (DATE/ TIME):_____________________

WORK TO END (DATE/TIME): _______________________

WORK TO BE PERFORMED BY (WORKER NAME EMPLOYEE AND/ OR SUBCONTRACTOR):_________________________________
____
____

(CIRCLE ONE) EMPLOYEE OR INDEPENDENT CONTRACTOR

FIELD TELEPHONE#: ______________

---

[7] NOTE: In the case of an Emergency, Abnormal, Normal or a Safety Related Condition pipeline shutdown/shutoff, the PEMC Compliance Officer will also fill out the AUTHORIZATION FOR MAINTENANCE AND REPAIR FORM.

TASK NUMBERS (FROM APPENDIX "A" – Operations and Maintenance Procedures Task Manual): ____________________

____

____

GEOGRAPHIC LOCATION(SEE APPENDIX E & F FOR MAPS): (LATITUDE AND LONGITUDE COORDINATES)

FROM: _______________DEG. N, _________________DEG. W

TO: __________________DEG. N, _________________DEG. W

SAFETY EQUIPMENT REQUIRED FOR THIS WORK (Initial appropriate items):

____ Gas Monitoring: LEL[8]/Carbon Dioxide/Oxygen/Methane

____ Self-Contained Breathing Apparatus

____ First aid kit.

_____ Other: ____

____

b. Responsibility of the PEMC Compliance Officer, (as those tasks relate to repair and maintenance of the Pipeline:

i. Ensure the PEMC Compliance Officer, Dan Green, remains qualified by executing the following:

I, DAN GREEN, THE PEMC COMPLIANCE OFFICER, HAVE ENSURED THAT THE WORKER(S) HAVE READ THIS PROCEDURAL MANUAL FOR OPERATIONS, MAINTENANCE AND EMERGENCIES AND ARE QUALIFIED TO CONDUCT THE LISTED TASKS AND HAVE REVIEWED THE TASKS IN APPENDIX "A" – Operations and

[8] LEL-Lower Explosion limit.

Maintenance Procedures Task Manual:

Signed:________________________ Date/Time:_______________

COMPLETION SECTION - TO BE COMPLETED BY THE PEMC COMPLIANCE OFFICER WITHIN FIVE (5) BUSINESS DAYS OF WORK COMPLETION.

WAS ALL WORK COMPLETED (CIRCLE ONE): YES OR NO.

WHAT WORK REMAINS TO BE COMPLETED (LIST TASKS):

____

____

____

____

DATE/TIME OF COMPLETION:__________________________

NOTES (ATTACH RESULTS OF ALL TESTS ON MATERIALS:

____

____

____

18. SIGNED, TIMED AND DATED:____________________________

____

c. <u>Maintenance and Repair Record Log</u>:

All maintenance and repairs conducted on the Pipeline will be recorded by the PEMC Compliance Officer, and a copy placed in APPENDIX "G" - Required Periodic Operations, Maintenance and Inspection Records, within five (5) working days, after the date of completion of the said maintenance and/or repairs tasks, not including weekends and designated PEMC holidays:

S.N. DATE/TIME	DESCRIPTION/TASK#	CONDUCTED BY

____
____
____
____
____
____

61. PERIODIC REVIEW OF MAINTENANCE AND REPAIR LOG[9]:

All maintenance activities and repairs conducted on the Pipeline, utilizing the AUTHORIZATION FOR MAINTENACE AND REPAIR FORM, will be reviewed within ninety (90) days from the work completion date, and the maintenance and repair procedure modified, if needed, within one-hundred eighty (180) days of the work completion date. See below for the form the PEMC Compliance Officer is to use for the Maintenance and Repair Log documentation:

S.N.	REVIEW DATE/TIME	ADEQUATE YES OR NO	EFECTIVE YES/NO	MODIFIED/DATE YES/NO

DETAILS OF CHANGES IN PROCEDURE AND OR MATERIALS:______________

____
____
____
____
____
____
____
____
____
____

I, DAN GREEN, THE PEMC COMPLIANCE OFFICER, HAVE REVIEWED THE

[9] A copy of this document is to be filed in Appendix "G" - Required Operations, Maintenance and Inspection Records.

ABOVE CHANGES AND HAVE CHANGED THIS PROCEDURAL MANUAL FOR OPERATIONS, MAINTENANCE AND EMERGENCIES ACCORDINGLY AND HAVE MADE THOSE CHANGES IN ALL COPIES OF THIS SAID MANUAL AND ITS APPENDICES.

Signed:________________________ Date/Time:____________

POLICIES AND PROCEDURES MANUAL SECTION NO. 12
PUBLIC AWARENESS

62. PUBLIC AWARENESS PROGRAM/PLAN:

The goal of the PEMC Pipeline Public Awareness Program is to enhance safety and environmental protection through increased public awareness and knowledge. Public awareness programs should raise the knowledge level of the affected public and key stakeholder audiences of the presence of pipelines in their communities and increase their understanding of the role of pipelines in transporting energy. PEMC is committed to operating safely and protecting the environment. Increasing public awareness in the communities near this Pipeline reduces the likelihood and potential impact of emergencies through education and programs like the "Call Before You Dig Program."

Specifically, the purpose of this Public Awareness section, under 49 C.F.R. §192 and §195, is to: (1) Establish continuing education programs (in compliance with 49 C.F.R. §192.616 and §195.440); (2) Establish and maintain liaison with emergency responders (in compliance with 49 C.F.R. §192.615 and §195.402); and (3) carry out damage prevention programs to prevent damage to pipelines by excavation activities (in compliance with 49 C.F.R. §192.614 and §195.442).

As a part of this Public Awareness Program, brochures have been prepared and will be attached as Appendices upon completion. See the following:

APPENDIX "I" – Public Awareness Program-Important Safety Information for the Community.

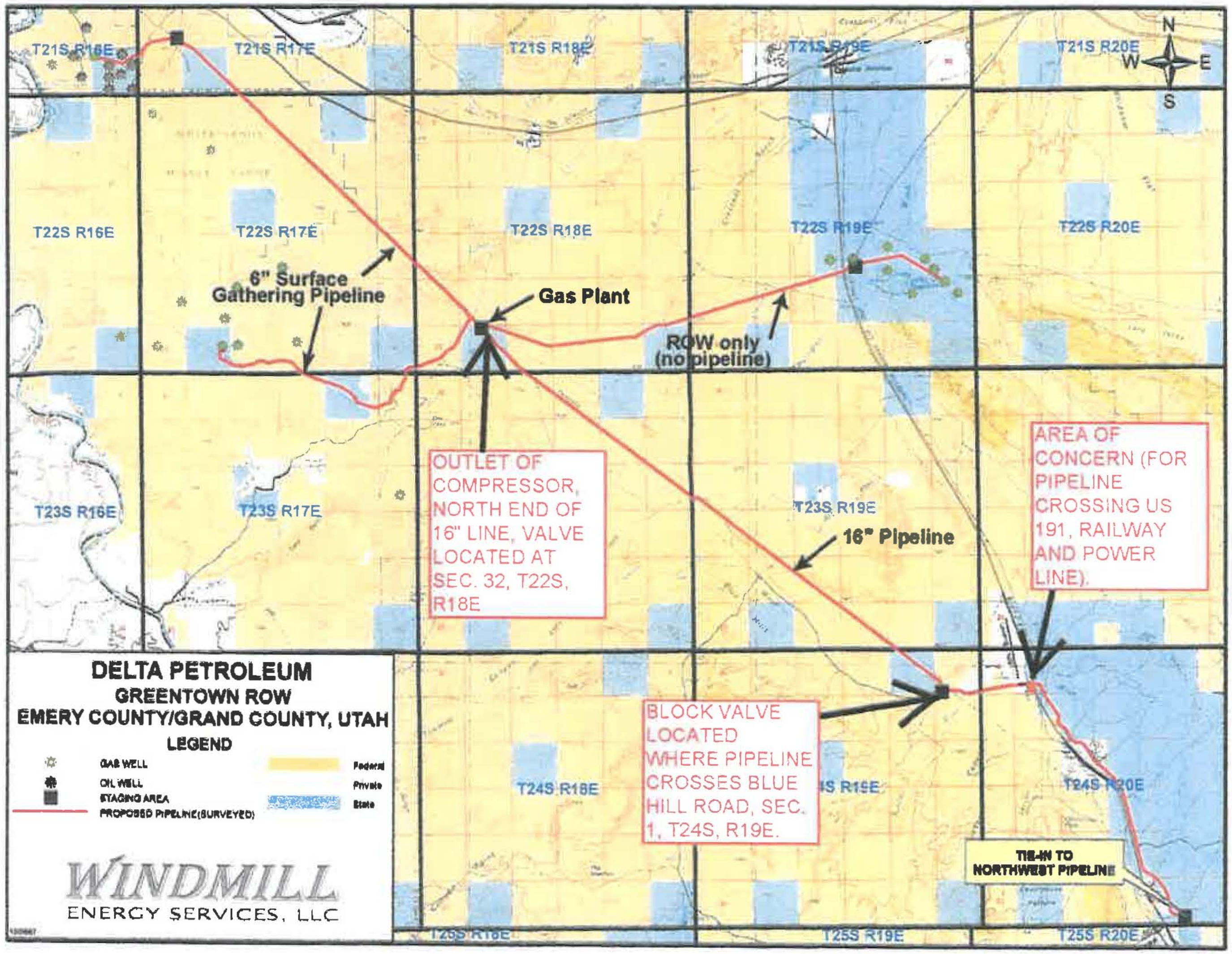
APPENDIX "J" – Public Awareness Program-Important Safety Information for Emergency Responders.

APPENDIX "K" – Public Awareness Program-Important Safety Information for Public Officials & Planning & Zoning Personnel.

APPENDIX "L" – Public Awareness Program-Important Safety Information for Excavators & Contractors.

APPENDIX "_" - General Provisions of Public Awareness Program

FIGURE 1-MAP OF PARADOX PIPELINE-OPID 39049



The subject pipeline has the following test points and locations:

TEST POINT # AND/OR DESCRIPTION	LATITUDE (N)	LONGITUDE (W)	Pipe-VDC P/S	Pipe-VAC P/S	Casing VAC P/S	DECOUPLER DESCRIPTION	ANODE PROTECTION
1-Outlet of Launcher (Gas Plant)	38.86032	109.95810				SSD-2/2-1.2-75	Zinc Ribbon
2	38.86052	109.95613				SSD-2/2-1.2-75	Zinc Mat
3	38.84341	109.93598				SSD-2/2-1.2-75	Zinc Mat
4	38.83427	109.92068				SSD-2/2-1.2-75	Zinc Mat
5	38.82616	109.90705				SSD-2/2-1.2-75	Zinc Mat
6	38.81680	109.89135				SSD-2/2-1.2-75	Zinc Mat
HVAC Drain	38.81302	109.88510				SSD-2/2-5.0-100	400' Copper Grounding Grid
7	38.80724	109.87535				SSD-2/2-1.2-75	Zinc Mat
8	38.79848	109.85880				SSD-2/2-1.2-75	Zinc Mat
9	38.78918	109.84320				SSD-2/2-1.2-75	Zinc Mat
10	38.78045	109.82862				SSD-2/2-1.2-75	Zinc Mat
11	38.77051	109.81199				SSD-2/2-1.2-75	Zinc Mat
12	38.75398	109.78434				SSD-2/2-1.2-75	Zinc Mat
13	38.74631	109.77539				SSD-2/2-1.2-75	Zinc Mat
BLOCK VALVE D/S	38.74593	109.77504				SSD-2/2-1.2-75	Zinc Ribbon
BLOCK VALVE U/S	38.74593	109.77504				SSD-2/2-1.2-75	Zinc Mat
14	38.74673	109.75386				SSD-2/2-1.2-75	Zinc Mat
15-D/S of RR	38.74455	109.73746					

Casing U/S of Hwy 191	38.7445 9	109.73720					
16	38.7306 4	109.72391					
17	38.7285 3	109.72042					
18	38.6970 3	109.69747					
19	38.6751 2	109.67943					
20-William's (NW) Launcher	38.6751 2	109.67943					

PARADOX PIPELINE CATHODIC PROTECTION SURVEY

DATE STARTED:________By: (PRINT NAME)__________________

DATE FINISHED:_________

RECTIFIER: Universal ES-1, set at ____amps.

Emailed to: dfgreen1@dslextreme.com Date-Time:_________-_________

TEST POINT	LAT. (N)	LONG. (W)	TIME	Pipe-VDC P/S	Pipe-VAC P/S	Casing VAC P/S	CHECKED FUNCTION-AMPS	DECOUPLER DESCRIPTION	ANODE PROTECTION
1-Outlet of Launcher (Gas Plant)	38.86032	109.9581						SSD-2/2-1.2-75	Zinc Ribbon
2	38.86052	109.95613						SSD-2/2-1.2-75	Zinc Mat
3	38.84341	109.93598						SSD-2/2-1.2-75	Zinc Mat
4	38.83427	109.92068						SSD-2/2-1.2-75	Zinc Mat
5	38.82616	109.90705						SSD-2/2-1.2-75	Zinc Mat
6	38.8168	109.89135						SSD-2/2-1.2-75	Zinc Mat
HVAC Drain	38.81302	109.8851						SSD-2/2-5.0-100	400' Copper Grounding Grid
7	38.80724	109.87535						SSD-2/2-1.2-75	Zinc Mat
8	38.79848	109.8588						SSD-2/2-1.2-75	Zinc Mat
9	38.78918	109.8432						SSD-2/2-1.2-75	Zinc Mat
10	38.78045	109.82862						SSD-2/2-1.2-75	Zinc Mat
11	38.77051	109.81199						SSD-2/2-1.2-75	Zinc Mat
12	38.75398	109.78434						SSD-2/2-1.2-75	Zinc Mat
13	38.74631	109.77539						SSD-2/2-1.2-75	Zinc Mat
BLOCK VALVE D/S	38.74593	109.77504						SSD-2/2-1.2-75	Zinc Ribbon
BLOCK VALVE U/S	38.74593	109.77504						SSD-2/2-1.2-75	Zinc Mat
14	38.74673	109.75386						SSD-2/2-1.2-75	Zinc Mat
15-D/S of RR	38.74455	109.73746							
Casing U/S of Hwy 191	38.74459	109.7372							
16	38.73064	109.72391							
17	38.72853	109.72042							
18	38.69703	109.69747							
19	38.67512	109.67943							
20-William's (NW) Launcher	38.67512	109.67943							
RECTIFIER-1							_____AMPS		
RECTIFIER -2							_____AMPS		

Specific delivery messages for each audience are stipulated in Chapter (3) – Company Communications Actions.

Table 2-1–RP 1162-Transmission Operations

2-1.1 Affected Public

Stakeholder Audience	Message Type	Delivery Frequency	Delivery Method and/or Media
Residents located along transmission pipeline ROW and places of congregation	Baseline Messages Pipeline purpose and reliability Awareness of hazards and prevention measures undertaken Damage prevention awareness One-Call requirements Leak recognition and response Pipeline location information How to get additional information Availability of list of pipeline operators through NPMS.	Baseline frequency Biennial	Baseline Activity Targeted distribution of print materials and pipeline markers
	Supplemental Messages Information and/or overview of operator's Integrity Management Plan ROW encroachment prevention Major planned maintenance and construction activity	Supplemental Frequency Additional frequency and supplemental efforts as determined by specifics of the pipeline segment or environment	Supplemental Activity Print materials Personal contact Telephone calls Group meetings Open houses
Residents near storage or other major operational facilities	Supplemental Message Information and/or overview of operator's Integrity Management Plan Special incident response notification and/or evacuation measures if appropriate to product or facility Facility purpose	Supplemental Frequency Additional frequency and supplemental efforts as determined by specifics of the pipeline segment or environment	Supplemental Activity Print materials Personal contact Telephone calls Group meetings Open houses

RP 1162 Table
RP 1162 for pipeline operators:

Stakeholder Audience	Message Type	Delivery Frequency	Delivery Method and/or Media
Emergency Officials	Baseline Messages Pipeline purpose and reliability Awareness of hazards and prevention measures undertaken Emergency preparedness communications Potential hazards Pipeline location information and availability of NPMS How to get additional information	Baseline frequency Annual	Baseline Activity Personal Contact (generally preferred) Targeted distribution of print materials Group meetings Telephone calls with targeted distribution of print materials
	Supplemental Messages Information and/or overview of operator's Integrity Management Plan ROW encroachment prevention Major planned maintenance and construction activity	Supplemental Frequency Additional frequency and supplemental efforts as determined by specifics of the pipeline segment or environment	Supplemental Activity Emergency tabletop, Deployment exercises Facility tour Open house

2-1.2 Emergency Officials

Table 2-1 – RP-1162-Transmission Operations (continued):

2-1.3 Local Public Officials

2-1.4 Excavators

Stakeholder Audience	Message Type	Delivery Frequency	Delivery Method and/or Media
Public Officials	Baseline Messages Pipeline purpose and reliability Awareness of hazards and prevention measures undertaken Emergency preparedness Communications One-Call requirements Pipeline location information and availability of NPMS How to get additional information	Baseline frequency Triennial	Baseline Activity Targeted distribution of print materials
	Supplemental Messages If applicable, provide information about designation of HCA (or other factors unique to segment) Information and/or overview of operator's Integrity Management Plan ROW encroachment prevention Major planned maintenance and construction activity	Supplemental Frequency If in HCA, then annual contact to appropriate public safety officials, otherwise, as appropriate to level of activity or upon request	Supplemental Activity Personal contact Telephone calls Videos and CDs

Stakeholder Audience	Message Type	Delivery Frequency	Delivery Method and/or Media
Excavators and Contractors	Baseline Messages Pipeline purpose and reliability Awareness of hazards and prevention measures undertaken Leak recognition and response One-Call requirements How to get additional information	Baseline frequency annual	Baseline Activity Targeted distribution of print materials One-Call Center outreach Pipeline markers
	Supplemental Messages Pipeline purpose, prevention measures and reliability	Supplemental Frequency Additional frequency and supplemental efforts as determined by specifics of the pipeline segment or environment	Supplemental Activity Personal contact Group meetings
Land Developers	Supplemental Messages Pipeline purpose and reliability Awareness of hazards and prevention measures undertaken Leak recognition and response One-Call requirements How to get additional information Damage prevention awareness ROW encroachment prevention Availability of the list of pipeline operators available through NPMS	Supplemental Frequency As determined by specifics of the pipeline segment or environment	Supplemental Activity Targeted distribution of print materials Pipeline markers Personal contact Group meetings Telephone calls

Table 2-1–RP 1162-Transmission Operations (continued):

2-1.5 One-Call Center

(3) COMPANY COMMUNICATION ACTIONS

Stakeholder Audience	Message Type	Delivery Frequency	Delivery Method and/or Media
One-Call Center	Baseline Messages *Pipeline location information *Other requirements of the applicable One-Call Center	Baseline frequency Requirements of the Utah One-Call Center (as changes are made on the pipeline).	Baseline Activity *Membership in Utah One-Call Center *Requirements of the Utah One-Call Center *Map (as required)
	Supplemental Messages *One-Call system performance *Accurate line location information *One-Call system improvements	Supplemental Frequency As changes in pipeline routes or contact information occur or as required by Utah regulations.	Supplemental Activity *Targeted distribution of print materials *Personal contact *Telephone calls

Table 2-2 – Assessment Measures:

APPROACH	TECHNIQUE	FREQUENCY
Assessment of Implementation	Review • Internal review or • Review by third party or • Regulatory inspections	Annually
Pre-test Effectiveness of Materials	Focus Groups • External participants or • Internal participants	Upon initial implementation or major re-design of materials, or development of new messages
Effectiveness of Implementation • Outreach • Level of Knowledge • Changes in Behaviors • Bottom-line Results	1. Surveys that can assess outreach efforts, audience knowledge & changes in behaviors • Operator designed 2. Assess notifications & incidents to determine anecdotal changes in behavior 3. Documented records and industry comparison of incidents to evaluate bottom-line results	No more than four years apart, or upon a major re-design of the program
Implement changes to the Public Awareness program as assessment methods suggest	The PEMC Compliance Officer will develop and oversee appropriate implementation techniques customized to meet the changes needed.	As required by findings of evaluations

APPENDIX A-Operations and Maintenance Procedures Task Manual

Paradox Natural Gas Pipeline
Operator: Pacific Energy & Mining Company
PHMSA (OPID): 39049

1/20/2014

1. DATE OF REVIEW: 12/19/2014 BY(PRINT NAME): MOBASHIR AHMAD.
2. DATE OF REVIEW:__________BY(PRINT NAME):________________________________
3. DATE OF REVIEW:__________BY(PRINT NAME):________________________________
4. DATE OF REVIEW:__________BY(PRINT NAME):________________________________
5. DATE OF REVIEW:__________BY(PRINT NAME):________________________________
6. DATE OF REVIEW:__________BY(PRINT NAME):________________________________
7. DATE OF REVIEW:__________BY(PRINT NAME):________________________________
8. DATE OF REVIEW:__________BY(PRINT NAME):________________________________

This manual has been prepared in compliance with 49 CFR 192.605.

TABLE OF CONTENTS (Page 1 of 4)

TABLE OF CONTENTS (Page 2 of 4)

TABLE OF CONTENTS (Page 3 of 4)

TABLE OF CONTENTS (Page 4 of 4)

B31Q Task # 0001	Page 1 of 1
Revision date: 9/26/12	Version: 2.2
Measure Structure-to-Electrolyte (Pipe to soil) Potential	TAB# 1

SCOPE AND PURPOSE

This procedure is to ensure adequate external corrosion protection for the pipeline systems. It describes cathodic protection inspection practices required to comply with §192.465(a).

RESPONSIBILITY

The Pacific Energy & Mining Company, or other designee, is responsible to ensure that pipe-to-soil measurements are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Do not conduct the survey during a lightning storm. Electricity from the lightning could travel onto the pipe and result in death or injury when electrical contact is made with the pipe during the pipe to soil measurement.

EQUIPMENT AND MATERIALS

Copper-copper sulfate electrode
Copper sulfate solution
Water
Ammeter/Voltmeter/Multi-meter
Wire dispensing reel
Other equipment and materials as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. Ensure the multi-meter batteries are fully charged
b. Select the proper meter settings and range (Set to read DC voltage).
c. After any maintenance on the primary half cell has been performed check the survey electrode by connecting the porous plug of the survey electrode with the porous plug of another electrode, by direct contact or in a conductive solution, and measure the potential difference. A difference of 5 mV or less is acceptable.
d. Locate and identify the proper test station, or pipe riser to read.
e. Connect the positive lead from the meter to the pipe or test station and the negative lead to the Copper/Copper Sulfate electrode to obtain the correct polarity.
f. Place the electrode in contact with the soil directly over the pipeline. If good electrical contact cannot be made, wet the ground with water.
g. Record the pipe-to-soil potential, exactly as it appears on the meter, including all decimal points.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

Any pipe-to-soil potential less than negative 850 mV (-.85 V), should be addressed in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0011 - Conduct Close Interval Survey
0021 - Measure Soil Resistivity
0031 - Inspect and Monitor Galvanic Ground Beds/Anodes
0091 - Troubleshoot In-Service Cathodic Protection Systems

B31Q Task # 0011	Page 1 of 4
Revision date: 10/22/08	Version: 2.0
Conduct Close Interval Survey	TAB# 2

SCOPE AND PURPOSE

This procedure is to ensure when personnel obtain pipe-to-soil potential readings at specified distance intervals along a pipeline that this work is performed in a manner that provides meaningful data for interpretation of cathodic protection levels.

It describes practices required to comply with §§192.455 and 192.463, and Appendix D to Part 192.

RESPONSIBILITY

The Pacific Energy & Mining Co., &, or other designee, is responsible to ensure when obtaining pipe-to-soil potential readings at specified distance intervals along a pipeline, that this work is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.

Ensure that all applicable safety equipment is being utilized as per company policy.

Provide an escort for the surveyor in traffic areas.

EQUIPMENT AND MATERIALS

System maps and records
10 megaohm input impedance digital voltmeter
Global Positioning System (GPS) instrument
Datalogger instrument
DC Voltage interrupter
#30 to #34 AWG transformer wire
Copper Copper-Sulfate reference electrodes
Reference electrode extension canes
Spare batteries for all DC powered instruments
Other equipment and materials, as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

<u>On Potential Survey – Sacrificial Anode System</u>

1. Locate and temporarily mark the entire piping system to be surveyed.
2. Test two Copper Copper-Sulfate reference electrodes using the digital voltmeter by connecting the reference electrodes to the voltmeter leads and making contact between the ceramic tips. The voltage reading should be less than or equal to 1 millivolt. Disassembly and cleaning of reference electrodes will usually correct voltage readings that are unacceptable.
3. Use enough transformer wire to reach from one cathodic protection test station to the next test station.
4. Connect one end of the transformer wire to the cathodic protection test station lead that is connected to the pipeline. Connect the other end of the transformer wire to the positive side of the digital voltmeter.
5. Install the reference electrodes into the extension canes. (One reference electrode can be used, however, two reference electrodes with extension canes allows the survey to proceed at a faster pace).
6. Connect the reference electrode leads into a splice fitting and connect the splice fitting to the negative or "common" side of the digital voltmeter.
7. Turn on the digital voltmeter and take a few test readings a short distance from the starting test station and just over the pipeline at intervals of approximately three feet. If the readings appear to be acceptable, begin the actual survey.

8. Continue obtaining pipe-to-soil readings at approximately three foot intervals to the next cathodic protection test station by placing one reference electrode at a time in contact with the soil just above the pipeline. At each three foot interval, alternate the reference electrode used as if using the extension canes as walking staffs.
9. When the next cathodic protection test station is reached, take and record a voltage reading at the successive test station lead attached to the pipeline. Record this voltage value along with polarity. The pipeline is used as a current shunt (resistor) while the wire is used to read the voltage drop across the pipeline segment between cathodic protection test stations. This reading can be used to detect current flow from outside sources through the pipeline segment, should it exist. This reading should be specially identified on recorded data.
10. If a data logger is used in conjunction with the digital voltmeter, all voltage readings and distances between cathodic protection test stations will be recorded.
11. If no data logger is available, a GPS instrument can be used to record distance values while each voltage reading is recorded by the survey escort.
12. Complete the entire survey and record all data obtained.
13. Apply the data to graph paper or a computer software program that develops a graph. Compare the voltage readings to the minimum criteria of -0.850 volts DC required by Federal regulations.
14. Areas that are not within minimum criteria should be scheduled for excavation and direct examination.

<u>On - Off Potential Survey – Impressed Current System</u>

1. Connect the DC voltage interrupter to the DC output circuit of the impressed current rectifier according to manufacturer instructions. Rectifiers equipped with filtered output current, either by chokes or capacitors, must have this feature disconnected during the survey in order to obtain meaningful data.
2. Set the DC voltage interrupter at a commonly used interruption cycle of 800 milliseconds "On" and 200 milliseconds "Off". The digital voltmeter will also cycle at this rate and only take pipe-to-soil readings while the impressed current is "Off".
3. If multiple impressed current rectifiers are used for a single pipeline, each rectifier must have a separate DC voltage interrupter and all interrupters must be accurately synchronized such that current interruption along the pipeline occurs simultaneously.
4. Impressed current cathodic protection system that has been supplemented with sacrificial anodes may produce erroneous pipe-to-soil data.
5. When the DC voltage interrupter cycles the protective current "Off", the polarized voltage potential of the pipeline can be momentarily read on the digital voltmeter. Use of a data logger is recommended here in order to accurately determine the actual polarized voltage potential value when data is displayed graphically. The polarized voltage potential is a voltage that is independent of IR (voltage) drop across the electrolyte.
6. The most reliable portion of the polarized voltage potential value graphic is just after the leading "Off spike" and before the DC voltage interrupter cycles back to the "On" position.
7. The walking speed during the survey must be controlled in order to collect the correct number of data values per liner distance of survey traveled.
8. Complete the entire survey and record all data obtained. There will be twice as much data collected as with the On Potential Survey since both "On" and "Off" voltage potentials are recorded.

9. Apply the data to graph paper or a computer software program that develops a graph. Compare the voltage readings to the minimum criteria of -0.850 volts DC required by Federal regulations.
10. Areas that are not within minimum criteria should be scheduled for excavation and direct examination.

Cell - to - Cell Potential Survey – Sacrificial Anode System

It should be noted that when using either type of Cell-to-Cell Potential Survey, as follows, sacrificial anodes will be indicated as corrosion cells and/or pipeline coating anomalies, therefore, it is essential that sacrificial anode locations are known prior to utilizing these methodologies, otherwise, unnecessary excavation efforts may be employed.

1. This type of close interval pipe-to-soil voltage potential survey is conducted in a similar manner as the On Potential Survey when sacrificial anodes are providing cathodic protection to the pipeline, with the following exceptions:
   a. "Leap Frog" reference electrode method:
   Perform the alternating pipe-to-soil potential readings in an identical manner as is performed using the On Potential Survey keeping in mind that each voltage potential reading may require arithmetic correction due to the fact that when electrical polarity changes on the digital voltmeter, this occurrence indicates an anomaly in coating integrity and/or an active corrosion cell on bare piping.
2. If a data logger is used in conjunction with the digital voltmeter, all voltage readings and distances between cathodic protection test stations will be recorded.
3. If no data logger is available, a GPS instrument can be used to record distance values while each voltage reading is recorded by the survey escort.
4. Complete the entire survey and record all data obtained.
5. Apply the data to graph paper or a computer software program that develops a graph. Compare the voltage readings to the minimum criteria of -0.850 volts DC required by Federal regulations.
6. Areas that are not within minimum criteria should be scheduled for excavation and direct examination.

Cell - to - Cell Potential Survey – Impressed Current System

1. This type of close interval pipe-to-soil voltage potential survey is conducted in a similar manner as the On Potential Survey when impressed current systems are providing cathodic protection to the pipeline, with the following exceptions:
   a. "Alternating" reference electrode method:
   Each pipe-to-soil voltage potential reading is taken by placing the successive reference electrode into the soil depression made by the preceding reference electrode.
   b. Each reference electrode must be placed at an equidistant interval from the previous reference electrode placement position, in order to obtain a meaningful pipe-to-soil voltage potential value.
   c. Corrosion cell identification, and/or pipeline coating anomalies indicating an active corrosion cell, can be identified by reversal of the digital voltmeter polarity while performing the subject survey.
2. If a data logger is used in conjunction with the digital voltmeter, all voltage readings and distances between cathodic protection test stations will be recorded.

3. If no data logger is available, a GPS instrument can be used to record distance values while each voltage reading is recorded by the survey escort.
4. Complete the entire survey and record all data obtained.
5. Apply the data to graph paper or a computer software program that develops a graph. Compare the voltage readings to the minimum criteria of -0.850 volts DC required by Federal regulations.
6. Areas that are not within minimum criteria should be scheduled for excavation and direct examination.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0001 – Measure Structure – to – Electrolyte Potential
0091 – Troubleshoot In-Service Cathodic Protection System
0111 – Maintain Rectifier
0171 – Measure External Corrosion

B31Q Task # 0021	**Page 1 of 3**
Revision date: 10/22/08	**Version: 2.0**
Measure Soil Resistivity	**TAB# 3**

SCOPE AND PURPOSE

This procedure is to ensure when personnel measure soil resistivity for the purpose of designing cathodic protection systems for buried metallic gas facilities that this effort is performed according to industry accepted practice.
Although there are no specific requirements for testing of soil resistivity under 49 CFR Part 192, reference to this practice is made for operators intending to demonstrate that a corrosive environment does not exist according to the provisions of §192.455.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when measuring soil resistivity, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records
Resistance meter
Mark III Soil box
Steel soil pins
Spare batteries for all DC powered instruments
Other equipment and materials, as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Wenner Four Pin Method

1. Select the area to be tested for soil resistivity.
2. Drive two soil pins into the soil at a distance of fifteen feet between the pins. This spacing is sufficient for soil resistivity testing at a depth of five feet of soil depth.
3. Connect a resistance meter lead from the C1 terminal to one of the first two soil pins and another resistance meter lead from the C2 terminal to the other soil pin.
4. Drive two additional soil pins at a distance of five feet each between the first soil pins. The resulting pin configuration will be four soil pins spaced at five feet apart in a liner fashion.
5. Connect a resistance meter lead from the P1 terminal to one of the two secondary soil pins and another resistance meter lead from the P2 terminal to the other secondary soil pin. The soil resistivity testing circuit is complete.
6. For extremely dry soil conditions, a small amount of tap water can be poured at the site of each soil pin to reduce soil contact resistance.
7. Move the spring loaded resistance meter switch to the battery test position and hold the switch in that position for a moment in order to ascertain battery integrity. Replace batteries as necessary
8. Adjust the "Ohms" switch to the central position.
9. Adjust the "Range" (multiplier) switch to the lowest available setting.
10. Move the spring loaded resistance meter switch to the "Adjust" position and hold the switch there while moving the "Range" (multiplier) switch from one position to the next until meter needle deflection is observed.

(TASK#0021-Page 2 of 3)

11. While maintaining the spring loaded resistance meter switch to the "Adjust" position, alternate using the "Ohms" switch and the "Range" (multiplier) switch in order to fine tune the meter dial to a "zero" value. Attempt to keep the "Ohms" switch at or near the center of its span.
12. Avoid "Ohms" switch settings that are near the top and bottom of the "Ohms" switch span.
13. Multiply the "Ohms" scale reading by the "Range" (multiplier) switch value. The resulting mathematical product is the soil resistance in units of "Ohms".
14. Use the following mathematical formula to obtain the soil resistivity in units of "Ohm-cm":

$$\rho = 191.5\,(A)\,(R)$$

where; **ρ = Resistivity, Ohm-cm**
191.5 = conversion factor
A = linear distance between soil pins, ft.
R = calculated meter resistance, Ohms

15. The following table is a list of commonly accepted gas industry values for soil resistivity ranges and associated degrees of corrosivity: (*Reference*: NACE Corrosion Basics)

Soil Resistivity, Ohm-cm	Degree of Corrosivity
0 – 500	Very Corrosive
500 – 1,000	Corrosive
1,000 – 2,000	Moderately Corrosive
2,000 – 10,000	Mildly Corrosive
> 10,000	Negligible

Soil Box Method

1. Obtain a sample of soil to be tested, and remove any rocks and other debris.
2. The Mark II soil box has side terminal pins that should be removed prior to introducing the soil sample. Other soil boxes may not have such terminal pins.
3. Tap water may be added to the soil sample in order to simulate actual native soil conditions.
4. Fill the soil box to the top with the soil sample, and using a suitable tool, compact the soil in the box. The box should be full of soil sample and level to the top. Add more soil as needed. Do not aggressively compact such that the box and its plastic parts are damaged.
5. When using the Mark III soil box, insert the terminal pins at this time.
6. For soil boxes having terminal pins at each end of the soil box, connect a resistance meter lead from the C1 terminal to one of the soil box terminal pins and another resistance meter lead from the C2 terminal to the other soil box terminal pin. Next, connect the P1 and P2 resistance meter leads to metallic probes and insert the probes into the soil sample between the two end terminal pins. This method simulates the Wenner Four Pin Method, but under laboratory conditions.
7. When using the Mark III soil box, connect the C1 and P1 terminal leads in parallel circuitry fashion and connect the C2 and P2 terminal leads in parallel circuitry fashion and connect each paired terminal lead assemblies to a single soil box pin.
8. Following the instructions for obtaining a soil resistance value in "Ohms" from items 7. through 15. from the Wenner Four Pin Method above, calculate the resulting soil resistivity in "Ohm-cm". Always use the soil box multiplies, as necessary to adjust the resulting value.

(TASK#0021-Page 3 of 3)

9. Prior to disposal of the boxed and compacted soil sample, apply tap water to the sample and record a supplemental soil resistivity value. This value may be used to simulate soil resistivity of the soil sample when wet at buried pipeline depth.
10. Soil resistivity values using either the Wenner Four Pin Method or the Soil Box Method are to be used for calculating pipeline protective current requirements for new pipelines, sacrificial anode size and linear/depth distribution intervals, as well as the extent of deep well anode beds associated with impressed current rectifier systems.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

None

B31Q Task # 0031	**Page 1 of 2**
Revision date: 10/22/08	**Version: 2.0**
Inspect and Monitor Galvanic Ground Base/Anodes	**TAB# 4**

SCOPE AND PURPOSE

This procedure is to ensure when personnel inspect and monitor galvanic anode ground beds that this practice is performed in a manner that produces data substantiating acceptable levels of cathodic protection. It describes practices required to comply with §192.465 and Appendix D of Part 192.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when inspecting and monitoring galvanic anode ground beds, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records
10 megaohm input impedance digital multimeter.
Copper Copper-Sulfate reference electrode
Spare batteries for all DC powered instruments
Other equipment and materials, as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

These instructions assume that the galvanic ground bed/anodes have been installed using test leads that terminate in test stations.

1. Set the digital multimeter to measure current from the galvanic anode to the pipeline by connecting the positive multimeter lead to the pipeline test lead and the negative or "common" multimeter lead to the anode lead.
2. Record the current value obtained in order to develop a current output history for the galvanic anodes tested. This data indicates remaining anode life over time.
3. If shunt resistors are installed between the galvanic anode and pipeline lead wires in the test station, set the digital multimeter to measure DC voltage and obtain a reading across the shunt resistor side pins.
4. Divide the voltage drop reading from the shunt resistor by the shunt resistor value typically stamped on the shunt resistor body. The resulting value is the current flowing from the galvanic anode to the pipeline.
5. If a pipe-to-soil potential reading is required, disconnect the anode lead from the pipeline test lead and obtain the pipe-to-soil potential value without the output current influence of the galvanic anode. Attempt to place the Copper Copper-Sulfate reference electrode as directly over the pipeline as is possible in order to account for IR drop across the electrolyte.
6. If multiple galvanic anodes are installed in a bed fashion and each has a shunt resistor installed at the test station along with a shunt resistor installed between the pipeline test lead and the galvanic anode bed, the output current for each individual galvanic anode can be obtained as well as a total output current from the entire anode bed.

(TASK#0031-Page 2 of 2)

7. Galvanic anode life has been depleted when 85% of the original output current value is gone.
8. Graphic representation of the aforementioned output current values for galvanic anodes is used to predict remaining galvanic anode life as well as scheduling of galvanic anode replacement prior to loss of pipe-to-soil potential values that are below required/acceptable criteria.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0001 – Measure Structure-to-Electrolyte Potential
0091 – Troubleshoot In-Service Cathodic Protection System

B31Q Task # 0041	Page 1 of 2
Revision date: 10/22/08	Version: 2.0
Installation and Maintenance of Mechanical Electrical Connections	TAB# 5

SCOPE AND PURPOSE

This procedure is to ensure when personnel install and maintain mechanical electrical connections that these devices are installed in a manner that provides mechanical security and electrical conductivity. It describes practices required to comply with § 192.471.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when installing and maintaining mechanical electrical connections that this work is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records
Other equipment and materials, as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTALLATION INSTRUCTIONS

General

Ensure that a strain loop or tension restraint is to be incorporated with the mechanical electrical wire connection near the pipe connection area.

Crimp Connectors

1. Install the crimp connector using the same gauge of wire into each end of the crimp connector. Take care not to over-crimp the connector and wire.

Threaded (screw) Compression Connectors

1. Ensure that when tightening wire inside a threaded compression connectors that the wire is not over tightened.

Split Bolt Connectors

1. Split bolt connectors function much the same as threaded compression connectors except that wire can be inserted from either or both side of the connector and when tightening the connector screw, wire damage is minimized since the connector has a non-threaded face in contact with the wire.

Solder Connections

1. Ensure that wire composition is compatible with the particular solder material to be used to make the connection.
2. Thoroughly clean and apply flux to the wire surfaces to be soldered together.
3. Heat the wire surfaces to be soldered to a temperature that allows solder to flow onto the wire.
4. Clean all acid flux from the wire after soldering and appropriate cooling time as acid flux can accelerate corrosion.

Wire Nut Connectors

1. Strip the wire ends to a suitable length that is compatible with the wire nut to be used.

(TASK#0041-Page 2 of 2)

2. Twist the solid or stranded wire ends together in a clockwise direction and twist the wire nut connector onto the stripped wire ends also in a clockwise direction until snug.
3. Do not over tighten the wire nut. Metallic insert wire nuts are preferable to plastic internal threaded wire nuts for added mechanical strength.
4. Some operators perform an electrical continuity test on mechanical electrical connections and associated electrical wire systems prior to backfilling.

MAINTENANCE INSTRUCTIONS

1. All mechanical electrical connections must be protected from atmospheric or earthen electrolyte corrosion.
2. When using wire nuts, consider those that are filled with a dielectric lubricant in order to avoid corrosion over the wire ends or insert the wire nut cover tube filled with dielectric grease that is specially made for this purpose.
3. All other splice types including; crimp, threaded (screw), split bolt, and solder connections require the application of either a dielectric grease, suitable petroleum mastic, or "liquid electrical tape" to act as a water proof coating followed by an ample wrap of non-conductive tape.
4. Additional future maintenance requirements are commonly due to damage by outside forces and may not always be avoided, but can be remedied when the operator has knowledge of such damage.
5. Mechanical electrical connections that are installed for the purpose of monitoring cathodic protection systems can be electrically tested for discontinuity indicating separated connections.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0001 – Measure Structure-to-Electrolyte Potential
0091 – Troubleshoot In-Service Cathodic Protection Systems
0941 – Install Tracer Wire

B31Q Task # 0051	**Page 1 of 2**
Revision date: 10/22/08	**Version: 2.1**
Installation of Exothermic Electrical Connection	**TAB# 6**

SCOPE AND PURPOSE

This procedure is to ensure when personnel install exothermic electrical connections that this work is performed in a manner that provides adequate exothermic attachment to the pipeline as well as adequate pipe coating repair.

It describes practices required to comply with §§192.461 and 192.471.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when installing exothermic electrical connections that, this work is performed in a manner that is described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

Mechanical Equipment
Hand Tools
Appropriately sized and insulated test lead and/or tracer wire
Exothermic electrical connection tools including;
-Appropriately sized test lead and/or tracer wire copper sleeves.
-Exothermic ignition oven (crucible).
-Exothermic metallic disks.
-Appropriately sized exothermic ignition Charges.
-Exothermic charge igniter.
-Exothermic furnace cleaning tool.
-Pin brazing gun.
Other equipment and materials, as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Conventional Exothermic Welding (CADWELD, THERMOWELD, etc.)

1. The pipe surface must be thoroughly cleaned to a bright shinny appearance and free of moisture, oil, and grease prior to exothermic welding.
2. CAUTION – Never exothermically weld to a corroded pipe surface.
3. ANSI/ASME B31.4 and B31.8 list the following minimum pipe wall thickness data for exothermic welding:

Nominal Pipe Diameter, in.	Pipe Schedule	Wall Thickness, in.
½	40	0.109
¾	40	0.113
1 to 2	10	0.109
2 ½ to 4	10	0.112
5 to 8	5	> 0.109
≥ 10	5	> 0.109

4. Strip the insulation from the solid core copper #12 or #14 AWG anode or test lead wire, about 1 ½ inches from the end.
5. Crimp a copper sleeve on the bare portion of the wire leaving about 1/8 inch of the wire protruding from the end of the copper sleeve.
6. Tie or wrap the wire to the piping so that any mechanical strain will not damage the weld after completion.

(TASK#0051-Page 2 of 2)

7. Open the cover of the oven (crucible) to expose the weld cavity.
8. Clean the cavity using the exothermic furnace cleaning tool, as necessary.
9. Insert an exothermic metallic disk into the weld cavity with the concave side facing downward to fit the shape of the weld cavity.
10. Remove the cap from an exothermic ignition charge container and pour the contents into the weld cavity.
11. Ensure that all of the fine ignition powder from the bottom of the ignition charge container is also poured lastly into the weld cavity.
12. Close the lid of the exothermic ignition oven (crucible) and place it over the wire with the copper sleeve and hold firmly against the pipe surface to be welded.
13. Wear protective gloves to prevent burns, and use the exothermic charge igniter to light the charge. DO NOT USE MATCHES OR A TORCH.
14. Hold the exothermic ignition oven (crucible) firmly for a moment allowing the weld to cool.
15. Remove the exothermic ignition oven (crucible) from the pipe and test the completed weld with a hammer. Avoid striking the wire directly.
16. After the weld has cooled completely, repair the pipe coating according to company procedures.

Pin Brazing

1. The pipe surface must be thoroughly cleaned to a bright shinny appearance and free of mastic, oil, and grease prior to pin brazing.
2. CAUTION – Never pin braze to a corroded pipe surface.
3. Select either a direct pin brazing lug or a threaded brazing pin for attachment to the pipe surface.
4. When using a direct pin brazing lug, the wire or cable must be prepared prior to pin brazing according to manufacturer instructions. Load the pin brazing lug and associated pin brazing ferule into the pin brazing gun.
5. Connect the pin brazing gun to a manufacturer approved power supply.
6. Pin braze the wire or cable and direct pin brazing lug to the pipe surface.
7. Test the completed pin braze with a hammer as performed with an exothermic weld. Avoid striking the wire or cable directly.
8. When using a threaded brazing pin, load the pin and associated pin brazing ferule into the pin brazing gun.
9. Follow item 5. above, and pin braze the threaded brazing pin to the pipe surface.
10. Test the completed pin braze with a hammer but avoid striking the threaded portion of the pin directly.
11. Attach the prepared wire or cable to the threaded brazing pin and secure with appropriate washer(s) and nut.
12. After the pin braze has cooled completely, repair the pipe coating according to company procedures.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0991 – Coating Application and Repair – Brushed or Rolled
1001 – Coating Application and Repair – Sprayed
1011 – External Coating Application and Repair – Wrapped

B31Q Task # 0061	Page 1 of 2
Revision date: 10/22/08	Version: 2.0
Inspect or Test Cathodic Protection Bonds	TAB# 7

SCOPE AND PURPOSE

This procedure is to ensure when personnel inspect or test cathodic protection bonds that these devices are performing as designed.

It describes practices required to comply with §§192.465(c), and 192.491(a).

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when inspecting or testing cathodic protection bonds, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records
10 megaohm input impedance digital multimeter.
Other equipment and materials, as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Interference Bonds

1. Access the test box or facility that contains the cathodic protection interference bond.
2. Visually inspect the equipment for signs of overheating (discolored wire or shunt material), corrosion that could cause connections to fail, insects, rodents, or other undesirable conditions.
3. Examine resistance wire or potentiometers for burned or broken wires that would indicate a lightning strike or power surge and repair as necessary.
4. If the test box or facility contains a shunt resistor designed to measure current, read the voltage across the shunt side pins and calculate the current flow across the shunt resistor. Record the voltage and polarity, and the calculated current values.
5. Verify that electrical current is flowing the intended direction using the polarity on the digital multimeter. This is performed by connecting the negative or "common" multimeter lead to the A side of the shunt resistor and the positive lead to the B side of the shunt resistor. If the polarity is positive, current is flowing from the A side to the B side of the shunt resistor.
6. If the test box or facility contains a diode, which only allows current flow in one direction, the electrons flow through the diode in the opposite direction of the indicating arrow stamped on the body of the diode. If the polarity and current test for the shunt resistor (in item 5. above) indicated the electron flow was in the same direction as the diode arrow, the diode may be shorted and additional maintenance may be required.
7. Compare all gathered data with historical values for the bond to determine if the bond circuit is performing within correct parameters.

(TASK#0061-Page 2 of 2)

8. If required, measure the pipe – to – soil potential of the pipeline or pipelines and determine if these values are within acceptable parameters.
9. If newly gathered data is not in agreement with historical values, the bond circuit may need to be repaired or replaced.

Distribution Bonds

1. Cathodic protection bonds designed and installed to extend or distribute cathodic protection from a "parent" piping system to a "child" piping system are tested in a similar fashion as interference bonds using the shunt resistor to measure voltage and calculate current flow across the bond to the "child" piping system.
2. If newly gathered and calculated values are similar to the historical values, the bond circuit is working properly.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0001 – Measure Structure–to–Electrolyte Potential
0011 – Conduct Close Interval Survey

B31Q Task # 0071	Page 1 of 2
Revision date: 10/22/08	Version: 2.0
Inspect or Test Cathodic Protection Electrical Isolation Devices	TAB# 8

SCOPE AND PURPOSE

This procedure is to ensure when personnel inspect or test cathodic protection electrical isolation devices that these devices are operating as designed.

It describes practices required to comply with §192.467.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when inspecting or testing cathodic protection electrical isolation devices, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records
-10 megaohm input impedance digital multimeter.
-Automotive battery circuit (12-volt wet-cell battery).
-Magnetic isolation tester with headphones.
-Other equipment and materials, as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Above Ground Isolation Devices

1. Perform a visual inspection of the isolation device for general condition, including corrosion, mechanical damage, or any other condition that might impair the operation of the device. Correct as necessary. (Note: Metallic based paints can cause shorting of isolation devices and should be avoided)
2. Measure the pipe–to–soil potential on both sides of the isolation device and confirm that the difference is adequate to assure positive isolation. (Note: Pipelines with cathodic protection on both sides of an isolation device can have the same potential on both sides and NOT be shorted. Connect an automotive battery circuit (12-volt wet-cell battery) with the negative terminal connected to the pipeline, and with the positive terminal connected to a temporary ground rod. Check the voltage on the side of the isolation device where the automotive battery circuit (12-volt wet-cell battery) is connected. If this side of the isolation device has a voltage value in excess of the minimum threshold, the isolation device is operating properly. Otherwise, the isolation device is shorted and must be repaired or replaced.
3. A magnetic isolation tester with headphones can also be used to test for proper isolation by connecting the needle points to each side of the isolation device and listening for a 60 cycle AC power humming noise or a scratching sound when the needles are moved across the sides of the isolation device. Either sound confirms that the isolation device is performing properly.

(TASK#0071-Page 2 of 2)

Casing Spacers

1. This inspection/test assumes that cathodic protection test leads are installed on both the carrier pipe and the casing pipe. A vent riser attached to the casing can also be used for a test lead.
2. Read the pipe–to–soil potential of the carrier pipe and record the value.
3. Using an automotive battery circuit, connect the positive terminal of the battery to the casing vent or casing test lead. Connect the negative terminal to a temporary ground rod. DO NOT use the carrier pipe for the negative connection in case the casing and carrier are shorted.
4. Check the pipe–to–soil potential of the carrier pipe again.
5. If the carrier pipe–to–soil value has not changed, the casing spacers are performing properly and the casing is not shorted to the carrier pipe.
6. If the carrier pipe–to–soil value has shifted to a positive voltage value, the casing is shorted to the carrier pipe and excavation and repair must be scheduled.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0001 – Measure Structure–to–Electrolyte Potential
0091 – Troubleshoot In-Service Cathodic Protection System

B31Q Task # 0081	**Page 1 of 3**
Revision date: 06/25/08	**Version: 2.0**
Install Cathodic Protection Electrical Isolation Devices	**TAB# 9**

SCOPE AND PURPOSE

This procedure is to ensure that cathodically protected pipelines are electrically isolated.

RESPONSIBILITY

The Pacific Energy & Mining Company, or other designee, is responsible to ensure that the cathodic protection electrical isolation devices are installed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Do not install cathodic protection electrical isolation devices if lightning is present.

Before attempting to install electrical isolation devices use a Radio Frequency Insulation tester across the two pieces of pipe material to be isolated.

EQUIPMENT AND MATERIALS

Necessary equipment and materials to perform the task, such as, but not limited to:

- Hand tools
- Flange Insulator kits
- Radio Frequency (RF) Insulation tester
- Other equipment and materials as needed

INSTRUCTIONS

Operator Qualification

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to install electrical isolation devices. Refer to the OQ Plan for specific qualification requirements.

Maintenance and Operation of Equipment

Check the batteries in the Radio Frequency Insulation tester before going into the field.

It is not recommended that a multimeter/voltmeter be used to test for resistance across insulated flange assemblies and fittings since the results will likely be unreliable, especially with pipe segments that are attached to buried facilities.

Installing an insulated flange assembly

1. Inspect the insulating gasket and flanges for defects.
2. Align flanges so that the faces are parallel to each other and the bolt holes line up. Do not force flanges into alignment using mechanical devices such as jacks or other tools that place excessive strain in the completed assembly.
3. Insert the full-face gasket between the flanges.
4. Insert several bolts, install nuts and tighten to hold the flanges in alignment. Insulating tubes and washers need not be installed on these bolts as these bolts will be removed later in this procedure.
5. Insert insulating tubes on remaining bolt holes.
6. Insert bolts through the insulating tubes.
7. Place insulating washers onto the bolts.
8. Place steel washers and nuts on bolts and hand tighten.
9. Remove the bolts installed in step 4 and repeat steps 5-8 for these bolts.
10. Partially tighten the bolts in sequence starting with the bolt at 12 o'clock, then 6 o'clock, then 3 o'clock, then 9, o'clock, etc. Depending on the size of the flange there may be 16 or more bolts. Repeat this process until all the bolts are properly tightened.
11. Check the effectiveness of the insulator by touching the two leads of the Radio Frequency Insulation tester to each side of the flange assembly.

(TASK#0081-Page 2 of 3)

12. If the Radio Frequency Insulation tester indicates there is electrical conductivity across the flange assembly, disassemble the flanges and start over at step 1.
13. If the assembly is to be buried, apply coating according to procedure #0991 or #1011, otherwise, apply coating according to procedure #1001.

Installing an insulated, bolted, compression coupling (pipe joining)

1. Inspect the surfaces of the pipe and coupling where the gasket is to seat to ensure they are free of grease, coating, scale, dirt or other materials. Remove any irregularities in the pipe that might damage the gasket. If the pipe ends are ragged, smooth them off to prevent damage to the gasket.
2. Apply soapy water to the pipe ends to aid in positioning the gasket without damaging it.
3. Install both the skirted gasket and the polyethylene insulator to one of the pipe ends. The middle sleeve must be positioned equally over both pipe ends. Leave no more than 1 inch gap between pipe ends.
4. Tighten the nuts sequentially as described above in step 10 for flanged fittings.
5. Check the effectiveness of the insulator by touching the two leads of the Radio Frequency Insulation tester to each side of the pipe assembly, check for conductivity across the fitting.
6. If the Radio Frequency Insulation tester indicates there is electrical conductivity across the fitting, disassemble the fitting and start over at step 1.
7. Soap test the coupling under operating pressure.
8. If the assembly is to be buried, apply coating according to procedure #0991 or #1011, otherwise, apply coating according to procedure #1001.

Installing an insulated, stab-fitting, compression coupling (pipe joining)

1. Clean pipe surfaces where coupling is to be installed. Ensure pipe is free of grease, coating, scale, dirt or other materials.
2. Disassemble the coupling and slide the end nuts onto each piece of pipe so that the threaded ends face each other.
3. Apply soapy water to gaskets position on the pipe ends in the same configuration that the gaskets were when disassembled.
4. Stab pipe ends into the coupling body until contact is made with the pipe end spacer.
5. Tighten end nuts using a smooth jawed wrench while holding the coupling body from rotating using a pipe wrench.
6. Check the effectiveness of the insulator by touching the two leads of the Radio Frequency Insulation tester to the pipe on each side of the coupling.
7. If the Radio Frequency Insulation tester indicates there is electrical conductivity across fitting, disassemble the fitting and start over at step 1.
8. Soap test the coupling under operating pressure.
9. If the assembly is to be buried, apply coating according to procedure #0991 or #1011, otherwise, apply coating according to procedure #1001.

Installing a weld-in insulator (manufactured insulated pipe segment)

1. Inspect the insulated pipe segment for defects.
2. Use a Radio Frequency Insulation tester to check for the absence of conductivity prior to welding.
3. Always use a qualified welder qualified under the applicable procedure(s) to perform welding functions related to this task.
4. Soap test the fitting under operating pressure after welding is completed and cooled.

5. Check the effectiveness of the insulator by touching the two leads of the Radio Frequency Insulation tester to the pipe on each side of the coupling.
6. If the Radio Frequency Insulation tester indicates there is electrical conductivity across fitting, the device is faulty and should be replaced.
7. If the assembly is to be buried, apply coating according to procedure #0991 or #1011, otherwise, apply coating according to procedure #1001.

Installing an insulated threaded fitting (dielectric or insulating union) on a meter riser

1. Inspect the insulating fitting for defects.
2. Apply thread compound to the meter riser.
3. Thread the non-insulated end of the insulating fitting onto the riser and tighten.
4. Thread the insulating end of the insulating fitting onto the pipe nipple downstream of the intended union position.
5. Install these types of fittings with the insulating end looking upwards to ensure positive identification in the future.
6. Tighten the insulated fitting using appropriate hand tools.
7. Check the effectiveness of the insulator by touching the two leads of the Radio Frequency Insulation tester to the pipe on each side of the coupling.
8. If the Radio Frequency Insulation tester indicates there is electrical conductivity across fitting, disassemble the fitting and start over at step 1.
9. Soap test the fitting under operating pressure.
10. Apply coating according to procedure #1001.

Installing an insulating meter swivel(s)

1. If a dielectric or insulating union is used on a meter riser, an insulating meter swivel should not be required.
2. If a dielectric or insulating union is not used on a meter riser, an insulating meter swivel should be installed to isolate the meter set from fuel gas and other associated interior piping such that the buried gas system cathodic protection is not compromised.
3. Some gas system operators prefer to install an insulating meter swivel on both the inlet and outlet meter spuds in the case that one of the insulating meter swivels fails over time.
4. Tighten the meter swivel(s) against the meter spuds using new meter swivel seals.
5. Soap test the fitting under operating pressure after installation is completed.
6. Apply coating according to procedure #1001.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0071	Inspect or Test Cathodic Protection Electrical Isolation Devices
0591	Leak Test at Operating Pressure
0641	Visually Inspect Pipe and Components Prior to Installation
0721	Joining of Pipe – Threaded Joints
0731	Joining of Pipe – Flange Assembly
0801	Welding
0811	Visual Inspection of Welds
0951	Installation of Pipe Above Ground
0991	Coating Application and Repair – Brushed or Rolled
1001	Coating Application and Repair – Sprayed
1011	External Coating Application and Repair – Wrapped
1041	Install Mechanical Clamps and Sleeves
1061	Installation of Customer Meters and Regulators – Residential and Commercial
1171	Installing Customer Meters – Large Commercial and Industrial.

B31Q Task # 0091	**Page 1 of 2**
Revision date: 10/22/08	**Version: 2.0**
Troubleshoot In-Service Cathodic Protection System	**TAB# 10**

SCOPE AND PURPOSE

This procedure is to ensure when personnel detect deficiencies with a cathodic protection system, that such issues are thoroughly investigated and remedied.

It describes practices required to comply with §192.465 (c) and Appendix D of Part 192, Sections I, III, and IV.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when deficiencies in a cathodic protection system are detected, that troubleshooting and associated remediation is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records
10 megaohm input impedance digital voltmeter.
Electrical ammeter.
Copper Copper-Sulfate reference electrode.
DC battery supply.
Temporary ground rod.
Other equipment and materials, as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

<u>Test Station Troubleshooting</u>

1. Whenever a cathodic protection test station indicates a pipe – to – soil reading value that is below required criteria, investigatory work must be performed in order to correct the situation.
2. Examine historical pipe – to – soil reading data in order to ascertain the extent of the discrepancy.
3. An abrupt decrease in pipe – to – soil readings for any type of cathodic protection system generally indicates either a faulty test station connection, or a foreign contact short.
4. Gradually decreasing pipe – to – soil readings for a galvanic anode cathodic protection system generally indicates normal degradation of the current output capacity of the installed galvanic anodes.
5. An abrupt decrease in pipe – to – soil readings for an impressed current rectified cathodic protection system generally indicates either a failed anode ground bed or a failed pipe coating system.
6. Connect the DC battery with the positive terminal lead to the temporary ground rod, and the negative terminal lead to the pipeline to be protected.
7. Install the electrical ammeter into the DC battery circuit. Start at the highest range on the meter and work downward to prevent damage to the ammeter if the current output is higher than expected.
8. Connect the digital multimeter and the Copper Copper-Sulfate reference electrode to monitor the pipe – to – soil potentials on the pipeline being tested.
9. Record the current value on the ammeter.
10. Allow the current to flow for about one minute and then turn the current supply off.

(TASK#0091-Page 2 of 2)

11. When the current supply is turned off, immediately observe the digital multimeter voltage value and monitor the pipe – to – soil potential value of the pipeline.
12. The pipe – to – soil potential value should fall from the initially observed output voltage value and stabilize momentarily at the polarized voltage value.
13. If the polarized voltage potential value is within required criteria levels, and the current value is not too excessive, the testing is has been completed.
14. The number of anodes needed to produce the required protective current must now be determined and installed; otherwise the required increase in rectifier current output must be supplied.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0001 – Measure Structure-to-Electrolyte Potential
0101 – Inspect Rectifier and Obtain Readings
0031 – Inspect and Monitor Galvanic Ground Beds/Anodes
0111 – Maintain Rectifier

B31Q Task # 0101	**Page 1 of 2**
Revision date: 4/14/08	**Version: 2.1**
Inspect Rectifier and Obtain Readings	**TAB# 11**

SCOPE AND PURPOSE

This procedure is to ensure adequate external corrosion protection for the pipeline systems. It describes cathodic protection inspection practices required to comply with §192.465(b).

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that rectifier inspections are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Do not conduct the survey during a lightning storm. Electricity from the lightning could travel onto the pipe and result in death or injury when electrical contact is made with the pipe during the rectifier inspection.

Never touch the rectifier before first checking for a short. Any contact with a shorted rectifier could result in a severe electrical shock.

EQUIPMENT AND MATERIALS

Ammeter/Voltmeter/Multi-meter
Other equipment and materials as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. Ensure the multi-meter batteries are fully charged.
b. Before making any contact with the rectifier, set meter to read voltage, place one lead on the rectifier case and the other on the ground. If there is a voltage reading, do not touch the rectifier -- there may be a short. Refer to Procedure #0111 for rectifier repair and replacement instructions.

Checking rectifier condition

c. Check the physical condition of the outside of the rectifier case.
d. Open the rectifier and check for anything that needs attending to, like insect nests, excess moisture, odors that may indicate over-heating and over-all condition. Check the anode and pipe cable connections for tightness. Verify that the "Coarse" and "Fine" taps have not changed since the last inspection. Record the tap settings.

Note: The following steps assume that readings are made with a hand-held ammeter/voltmeter/multimeter. Readings can also be taken from the voltage and current meters of the rectifier, if present and accurate.

Checking rectifier voltage

e. Select the proper meter settings and range (Set to read DC voltage).
f. Connect the positive voltmeter test lead to the positive or anode output terminal of the rectifier. Connect the voltmeter negative or common test lead to the negative or pipe output terminal of the rectifier. Record the voltage.
g. If there is no voltage, check that the power is turned on and check the fuse (or circuit breaker). If power is on and the fuse or circuit breaker is OK, report the problem to the field Supervisor.

Checking rectifier output current

h. Select the proper meter settings and range (Set to read DC millivolts).

(TASK#0101-Page 2 of 2)

i. Locate the shunt and verify the shunt amperage and millivolt rating
j. Measure the voltage across the shunt.
k. Calculate the current output by multiplying the millivolt reading across the shunt by the shunt amperage rating and divide by the shunt millivolt rating. Example: With a shunt rated at 50mV and 15A and a meter reading across the shunt of 34 mV:

   34mV x 15A / 50mV = 10.2 Amps.

l. Record the current on the proper forms.

Optional – Read rectifier current input

m. If the rectifier has a meter indicating rectifier input current, record that on the proper forms.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0001 – Measuring Structure to Electrolyte Potential.
0111 – Maintain Rectifier.

B31Q Task # 0111	**Page 1 of 3**
Revision date: 10/22/08	**Version: 2.0**
Maintain Rectifier	**TAB# 12**

SCOPE AND PURPOSE

This procedure is to ensure when personnel install, inspect, and maintain a cathodic protection rectifier, that it is performed in order to ensure that the rectifier is operating as designed in order to cathodically protect the associated pipeline facility.

It describes practices required to comply with §192.465.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when installing, inspecting, and maintaining a cathodic protection rectifier, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records
10 megaohm input impedance digital multimeter.
Other equipment and materials, as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Installation

CAUTION! SHOCK HAZARD! The rectifier is powered by high voltage A.C. power. Whenever the rectifier case is opened, there is a potential shock hazard to personnel performing rectifier maintenance. Proper electrical safety equipment should be used whenever a rectifier is being inspected and/or maintained.

1. After the cathodic protection rectifier has been physically installed and the input AC power supply has been connected and tested, the remainder of the rectifier circuit can be attached, tested, and adjusted.
2. Ensure that rectifier DC output cables are installed in conduit or other means of protecting the wire and associated insulation, that a ground bed shunt resistor box with the required anode connections is completed, and a means of securing the rectifier case is installed.
3. Before the DC output cables are connected, set the tap settings to the lowest (Coarse 1 and Fine 1) positions, and turn the rectifier on.
4. Using a digital multimeter capable of indicating current polarity, attach the negative or "common" lead terminal of the multimeter to the negative (-) output terminal of the rectifier, and the positive lead terminal of the voltmeter to the positive (+) output terminal of the rectifier. Verify that the polarity marked on the rectifier front panel is correct. Rarely, rectifiers have been shipped from the manufacture with incorrect wiring inside. This step eliminates this possibility.
5. Turn the rectifier to the "Off" position.

6. Attach the positive lead terminal of the rectifier to the cable attached to the anode ground bed. If this cable is directly buried, the insulation sheath must be in "like new" condition. Any damage that exposes the bare wire will cause the cable to radiate current just like the anode ground bed causing the cable to fail almost immediately. Attach the negative lead terminal of the rectifier to the cable attached to the pipeline. This connection procedure MUST be performed exactly as stated. Incorrect wiring connections can cause premature pipeline failure.
7. Turn the rectifier on.
8. Using either, historical voltage/current values, or design and current requirement test values, adjust the rectifier taps to allow the rectifier to produce the DC output voltage and current required to protect the pipeline. For each change of tap settings, first turn the rectifier off, make the changes, and then turn the rectifier back on.
9. If the pipeline requires current values that are high, or if the pipeline is poorly coated or bare, do not attempt to get the target pipe – to – soil potentials correct on the first attempt at rectifier adjustment. Adjust the rectifier to a setting that will provide approximately 75 % of the required current and allow the system to operate at this setting over night, or longer, to allow the pipeline to polarize before final rectifier adjustments are made.
10. After the pipeline has polarized, complete the tap adjustment steps necessary for the rectifier to provide the required DC current and voltage output combination to achieve protective pipe – to – soil potentials. The DC output voltage is controlled by the tap settings, and the anode ground bed –soil – pipe coating circuit resistance controls the DC output current level
11. If more current is required, increase the DC output voltage.
12. After the rectifier has been operating at the operational DC output levels for 24 hours, check the rectifier for excessive hum that might indicate excessive current output, odors that indicate over – heated wires or other electrical components, and any other obvious problems.
13. Adjust the DC output of the rectifier to achieve correct pipe – to – soil potentials without over driving the system. Excessive DC output voltage and current causes coating damage and increases the possibility of interference problems. Find the lowest pipe – to – soil potential on the pipeline, and adjust the rectifier to keep that pipe – to – soil potential well within required compliance levels.

Troubleshooting

1. Visually inspect the case for indication of damage and/or vandalism.
2. The AC voltage and circuit breaker or fuses should always be checked before using more complex troubleshooting procedures.
3. When approaching a rectifier that is suspected of electrical failure, always touch the outside case lightly with the back of the hand. If there is a light shock, disconnect the power at the main input power supply disconnect and use an electrician for further investigation.
4. Perform a complete visual inspection first. Many rectifier problems can be identified through visual inspection. As the rectifier is approached, listen for the hum associated with the transformer operation. If it is there, the power is on and the high voltage side is working. Check for blown circuit breakers, blown fuses, and test the cable connections for tightness first.
5. Rectifiers are shipped with a schematic diagram, usually located in one of the doors. Personnel can refer to this information for guidance.

6. Check the output surge suppresser, or lightning arrester for signs of operation – burn marks, missing pieces, or complete failure. Surges often enter a rectifier from the pipeline.
7. Troubleshooting should be performed from the DC voltage side first. Check for DC output voltage. If it is near normal, check the DC current output. If the DC current is near "zero", look for a blown DC output fuse, or a cut cable.
8. Using the digital multimeter, test the voltage across the tap bars. This is the AC output directly downstream of the transformer. This voltage should be 20 % to 50 % higher than the expected DC output voltage at the DC connection cables to the anode ground bed and the pipeline.
9. If the rectifier has selenium plates, (the green plates stacked together with 4 wires coming out), examine the plate surfaces for burned spots that might indicate a power surge or lightning strike problem. Rectifier plates and diodes are usually soldered into the circuits and do not lend themselves well to field replacement.
10. The list below represents the troubleshooting sequence used to test the entire electrical circuitry of a rectifier. When each sequential part of the electrical circuit is found to be operational, the next successive item on the list is likely where any electrical circuit problem exists.
    a. High voltage input, lightning arrestor, circuit breaker.
    b. Transformer and taps.
    c. Full wave rectifier circuit, plates, diodes.
    d. Measuring circuit, voltmeter, ammeter, shunts and switches.
    e. Output circuit, fuses, lightning arrestor and cable terminals.

<u>Removal From Service</u>

1. Turn off <u>all</u> input AC power supplies.
2. Disconnect all AC input voltage wires, label them as required, and place wire nuts or tape over any exposed wire ends.
3. Disconnect the positive and negative output cables to the anode round bed and pipeline, and label them as required.
4. Remove the rectifier cabinet from the support mechanism.
5. Remove conduit nuts and ground cables, if installed.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0001 – Measure Structure – to – Electrolyte Potential.
0101 – Inspect Rectifier and Obtain Readings.

B31Q Task # 0141	**Page 1 of 1**
Revision date: 4/14/08	**Version: 2.1**
Visual Inspection for Atmospheric Corrosion	**TAB# 13**

SCOPE AND PURPOSE

This procedure is to ensure adequate external corrosion protection for the pipeline systems
It describes corrosion protection inspection practices required to comply with §192.479 and §192.481.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that visual inspection for atmospheric corrosion is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Wear a hard hat and high visibility safety vest when exposed to vehicular traffic or construction activity. When arriving at the location, be aware of any environment that can pose a threat to personnel safety.

EQUIPMENT AND MATERIALS

System maps and records.
System leak grading criterion.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform visual inspection for atmospheric corrosion. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. While approaching the pipeline or portion of pipeline, perform a visual examination of the area for signs of conditions that may contribute as a factor to atmospheric corrosion.
b. Visually and physically examine above-ground facilities for the presence of atmospheric corrosion including, but not limited to:
   - General "uniform" corrosion – large areas of pipe are rusting or pitting uniformly.
   - Localized "non-uniform" corrosion – pipe is rusting or pitting only in one or more specifically defined areas.
   - Faded or thinning paint or coating.
   - Flecking or small patches of paint or coating missing, or light rust bleed through.
   - Paint or coating totally absent from entire section or large section of facility.
   - Paint or coating totally absent from entire section or large section of facility and a percentage of pipe diameter of the original wall thickness has eroded.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0191– Measure Atmospheric Corrosion.
0991– Coating Application and Repair-Brushed or Rolled
1001–Coating Application and Repair-Sprayed
1011--External Coating Application and Repair-Wrapped

B31Q Task # 0151-0201-0641	**Page 1 of 1**
Revision date: 4/14/08	**Version: 2.1**
Visual Inspection of Buried Pipe & Components When Exposed **Visual Inspection of Pipe & Components for Mechanical Damage** **Visually Inspect Pipe & Components Prior to Installation**	**TAB# 14**

SCOPE AND PURPOSE

This procedure is to ensure adequate external corrosion protection for the pipeline systems. It describes corrosion protection inspection practices required to comply with §192.459.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that visual inspections of pipe and components are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Wear a hard hat and high visibility safety vest when working at the job site location. When arriving at the location, be aware of any environment that can pose a threat to personnel safety.

EQUIPMENT AND MATERIALS

System maps and records.
Routine hand tools.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform visual inspection of buried pipe and components when exposed. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. Clean exposed portion of buried pipeline and components by removing soil.
b. Visually and physically examine buried pipeline and components when exposed for evidence of external corrosion, dents, gouges or cracks.
c. If the pipe is coated, visually inspect the condition of the coating, checking for areas where the coating has become disbonded from the pipe or is missing.
d. If external corrosion requiring remedial action is found, an investigation shall be performed both circumferentially around the pipe and longitudinally along the pipe beyond the exposed portion to determine whether additional corrosion requiring remedial action exists in the vicinity of the exposed portion.
e. Remedial action shall be taken in accordance with Operation and Maintenance Manual

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0171 – Measure External Corrosion.

B31Q Task # 0161	**Page 1 of 1**
Revision date: 10/22/08	**Version: 2.0**
Visual Inspection for Internal Corrosion	**TAB# 15**

SCOPE AND PURPOSE

This procedure is to ensure when personnel either perform hot tapping procedure or otherwise remove segment of gas piping and associated fittings, that the internal surface of these facilities are visually examined for evidence of internal corrosion.

It describes practices required to comply with §§192.475, 192.485, 192.487, and 192.489.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when performing hot tapping procedures or otherwise removing segments of gas piping and associated fittings, that the internal surface of these facilities are visually examined for evidence of internal corrosion, and that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records
Other equipment and materials, as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

1. Whenever a hot tap is performed on a metallic gas pipe, the pipe coupon should be retained and visually examined for evidence of internal corrosion.
2. Whenever a segment of gas pipe is removed or otherwise taken out of service, the internal surfaces should be examined for evidence of internal corrosion.
3. Indications of internal corrosion require a thorough investigation of adjacent pipe, both longitudinally and circumferentially, in order to discover the actual extent of internal corrosion.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0151 – Visual Inspection of Buried Pipe and Components When Exposed
0181 – Measure Internal Corrosion
1081 – Tapping a Pipeline (Tap Diameter 2 Inch and Less)
1091 – Tapping a Pipeline (Tap Diameter greater than 2 Inch)

B31Q Task # 0171-0191	Page 1 of 2
Revision date: 8/26/08	Version: 2.0
Measure External and Atmospheric Corrosion	TAB# 16

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities necessary to measure and characterize external corrosion. It includes an investigation for determining the extent of corrosion to buried pipe and atmospheric corrosion to above ground pipe.

It describes practices required to comply with §§192.459, 192.481 and 192.487.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that measuring external and atmospheric corrosion is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Pipe Pit Depth Gauge.
Company Records.
Hand Tools.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

Measurement Steps

a. Examine pipe for evidence of external corrosion. Investigate both circumferentially and longitudinally along the pipe for a reasonable distance measured laterally beyond the corroded area. The strength integrity of the pipe is dependent on the longitudinal extent of the corroded area in relation to the maximum wall thickness loss. Check for corrosion at any damaged, deteriorated, or disbonded coating, soil to air interfaces, and pipe exposed to air, moisture and pollutants.
b. Clean pipe removing dirt, scale, rust or other foreign matter as much as safely possible. Be careful not to encounter possible leaking gas.
c. Take an external measurement of pipe wall thickness utilizing a pipe pit depth gauge.
   General operating instructions for mechanical pipe pit depth gauge:
   i. Maintain pit gauge in good mechanical condition. Pit gauge should not be bent, misaligned, warped or damaged.
   ii. Align the straight edge of the pit gauge along the uncoated surface of pipe or fitting being measured.
   iii. To measure individual pit depths, insert the tip of the depth probe to the bottom of the pit while keeping the straight edge of the pit gauge flat against original metal.
   iv. Determine depth by reading the top edge of the depth probe indicator. The depth reading should be read in decimal equivalent inches.

   v. Determine the remaining wall thickness by subtracting the pit depth from the original wall thickness.

d. Reference company procedures for acceptable limits of metal loss.
e. Perform remedial action based on remaining wall thickness.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual

RELATED PROCEDURES

0141 – Visual Inspection for Atmospheric Corrosion
0151 – Visual Inspection of Buried Pipe and Components When Exposed
0161 – Visual Inspection for Internal Corrosion

B31Q Task # 0181	**Page 1 of 2**
Revision date: 10/22/08	**Version: 2.0**
Measure Internal Corrosion	**TAB# 17**

SCOPE AND PURPOSE

This procedure is to ensure when personnel measure the extent of internal corrosion of piping and associated fittings that is performed to ensure accuracy of specific corrosion pit measurement and extent.

It describes practices required to comply with §§192.474, and 192.487.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when the extent of detected internal corrosion of piping and associated fittings is measured, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records.
Sonograph instrument.
Pit depth gauge/deflection indicator.
Other equipment and materials, as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

1. Clean the pipe and/or fitting sample by removing burrs, corrosion deposits, dirt and coating.
2. Use pit depth gauge, with a pit-measuring tip small enough to reach the bottom of the corrosion pit being examined.
3. The body of the pit depth gauge must lay flat on the internal surface being inspected. Holding the pit depth gauge firmly, push the tip into the different pits and record each pit depth result.
4. If a deflection indicator is used, thoroughly clean the pipe and/or fitting sample(s). Lay the sample with the outside of the pipe on a smooth, flat inspection surface. Using a pointed tip on the deflection indicator that will reach the bottom of the smallest pit, position the sample under the deflection indicator and measure to a smooth pipe or fitting surface that does not have any corrosion pits. This will establish the wall sample thickness. Adjust the dial to read "zero". Raise the dial tip, do not drag it on the surface of the pipe or fitting, and move the sample into position allowing the tip to move into the bottom of the pit. Read the difference between the "zero" on the dial ace, and the reading in the bottom of the subject pit. Record the information obtained.
5. After completely removing an ample amount of pipe coating and any associated mastic material, use a sonograph instrument to measure pipe wall thickness on either a pipe or fitting sample in the field, or from removed samples. Turn the sonograph instrument on, and using the instrument calibration block, that most closely matches the assumed pipe wall thickness, apply a small amount of required gel to the cleaned pipe or fitting surface and again test the instrument for calibration.

6. Apply the required instrument gel to the general pipe or fitting surface area to be tested. Depending on the transducer and the pipe/fitting wall thickness, the transducer slit/window should be parallel or perpendicular to the pipe or fitting length.
7. Several individual tests will have to be performed unless the instrument has "B Scan" capabilities which allows the transducer to be moved across the pipe or fitting surface while the instrument obtains readings and displays the results on a graph. With an instrument without "B Scan", the transducer will have to be exactly over a pit to register the associated pipe or fitting thickness. Document all readings, recording good pipe wall thickness readings along with defect values.
8. If the sonograph readings indicate that the pipe or fitting wall is reduced to less than 30 % of its original thickness, it is considered "unserviceable", and must be replaced. Multiple pits, close enough together to affect pipe wall mechanical strength should be addressed appropriately.
9. With all cases of internal corrosion, the problem causing corrosion in one section of pipe might be common to the entire piping system and must be thoroughly investigated.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0151 – Visual Inspection of Buried Pipe and Components When Exposed.
0161 – Visual Inspection for Internal Corrosion.

B31Q Task # 0211	**Page 1 of 2**
Revision date: 10/22/08	**Version: 2.0**
Measure and Characterize Mechanical Damage on Installed Pipe and Components	**TAB# 18**

SCOPE AND PURPOSE

This procedure is to ensure when personnel measure and characterize mechanical damage to installed pipe and components that this effort is performed according to accepted gas industry standards.

It describes practices required to comply with §§192.614 (c) (6) and 192.703.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when measuring and characterizing mechanical damage on installed pipe and components, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

System maps and records.
Hand Tools.
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

a. Prepare Surface
   i. Remove dirt, debris, and loose coating.
   ii. Clean pipe surface.

Steps

b. Characterize
   i. Cracks
      - Cracks of any type in gas piping and components are unacceptable since future leakage is typically eminent. Gas piping and components that are affected by cracking may be considered unserviceable.
   ii. Dents
      - This type of mechanical damage is commonly caused by motorized machinery and the extent of damage should be measured in order to determine the exact cause of damage.
      - Dents in steel exhibit no loss of metal and the material surface is left smooth. Characterization of dents is typically confined to whether the inside flow diameter has been reduced beyond serviceability and whether the facility has been stressed to a point that could cause future failure.
      - Dents in polyethylene pipe are typically treated the same as gouges.
   iii. Gouges
      - This type of mechanical damage is commonly caused by motorized machinery and the extent of damage should be measured in order to determine the extent of damage.

- Gouges in steel exhibit loss of metal and the material surface is often left rough and or sharp with grooves in the direction of the moving machinery causing the damage. Gouges may, but do not always, reduce the internal flow diameter.

c. Measure
  i. Cracks
    - Some cracks in steel are readily visible but most must be detected using radiographic, ultrasonic, dye penetrant, or magnetic particle methods of non-destructive testing in order to measure and characterize the anomaly.
  ii. Dents
    - Dents should be tested using radiographic, ultrasonic, dye penetrant, or magnetic particle methods of non-destructive testing in order to be properly characterized.
  iii. Gouges
    - Measurement of steel gouge depth can be performed using a depth gauge or by use of a sonogram instrument in order to determine the extent of metal loss.
    - Gouges in polyethylene pipe and fittings that exhibit loss of wall thickness greater than or equal to 10 percent, (≥ 10%), may be characterized as an unserviceable facility that must be replaced.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual

RELATED PROCEDURES

0151 – Visual Inspection of Buried Pipe and Components When Exposed
0201 – Visual Inspection of Installed Pipe and Components for Mechanical Damage
0601 – Radiographic Testing
0611 – Liquid Penetrant Testing
0621 – Magnetic Particle Testing
0631 – Ultrasonic Testing
0801-0811 – Welding & Visual Inspection of Welding and Welds
1071 – Repair of Steel Pipe by Grinding

B31Q Task # 0221	**Page 1 of 3**
Revision date: 10/22/08	**Version: 2.0**
Inspect, Test and Maintain Sensing Devices	**TAB# 19**

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to ensure the integrity of the piping system when inspecting, testing, and maintaining sensing devices.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that inspecting, testing, and maintaining sensing devices are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records.
10 megaohm input impedance digital multimeter.
Pressure switch.
Pressure transducer.
Temperature transducer.
Differential Pressure transducer.
Laptop computer with software.
Other equipment and materials, as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Pressure Switches

1. Connect the digital multimeter to the pressure switch wiring circuit and monitor the circuit current while varying the sensor input pressure throughout its operating range on a test bench.
2. Confirm that the pressure switch triggers at the correct gas pressure.
3. If the pressure switch set or trigger point is adjustable, perform a set or trigger point adjustment at this time, as required.
4. Reseal the set point adjustment access, as necessary.
5. If an electronic circuit monitors the pressure switch in the field, and the set or trigger point is adjustable by electronic means, set up field test equipment in order to observe and modify the set or trigger point.
6. As gas system pressure increases through the pressure switch range, adjust the set or trigger point to ensure that the local or remote pressure monitor is working in acceptable parameters.

Pressure Transducer

1. Pressure transducers are usually an analog device that has a variable internal resistance value.
2. Connect the digital multimeter to the pressure transducer wiring circuit either on the bench or in the field and monitor the circuit current. The internal resistance of the pressure transducer must be added to total circuit resistance so that the full 20 mA current can flow to the circuit receiver. In these circuits, 4 mA values are usually recognized as a "0" pressure or "no flow" conditions. As the gas system pressure increases, the internal resistance value of the sensor decreases so that at full sensor rated operating pressure, the circuit will flow 20 mA.
3. For digital output pressure transducer circuits, the circuit interpretation and reaction can take different forms. The

interface circuit may read the resistance output value from the pressure transducer, or the controlling circuit may furnish a calibrated output voltage and read the voltage drop associated with the varying circuit resistance value. Typically, an electronic interface is required to test or calibrate this equipment. The input pressure to the pressure transducer must be monitored using an accurate pressure gauge and the corresponding output signal delivered to the monitoring station must be verified for agreement.

4. Pressure transducers with output values in units of "psig" or "psia" are calibrated differently. Depending on the geographic altitude of the gas system facilities, a pressure transducer may display varying output values. A pressure transducer with output values in units of "psig", when removed from the piping system and exposed to the atmosphere, should display an output value of "zero". A pressure transducer with output values in units of "psia", when removed from the piping system and exposed to the atmosphere, should display an output value corresponding to the local atmospheric pressure conditions
5. Pressure transducer calibration using the appropriate instruments requires the sensor or transducer to be exposed to atmospheric pressure. The corresponding pressure transducer output circuit is adjusted to either "zero" for "psig" instruments, or to local "atmospheric pressure" for "psia" instruments.
6. The pressure transducer is then exposed to a known, calibrated pressure – near system operating pressure is desirable – and the pressure transducer output circuit is adjusted to this gas pressure value. This procedure is known as "span adjustment".

Temperature Transducer

1. Temperature transducers operate using a thermocouple inside a metal tube that is inserted into the gas flow stream. They may be mounted in a thermowell or similar device to protect the fragile tube from damage caused by contaminates in the gas flow stream. To be accurate, the probe, or thermowell, must be exposed to the center of the gas flow stream. As the gas flow stream temperature changes, the voltage output or resistance characteristics of the thermocouple change to reflect the gas flow stream temperature conditions.
2. Test the temperature transducer by either measuring the voltage output, usually in millivolts, or the resistance of the probe and compare it with the appropriate manufacturer table indicating temperature curves vs. output voltage or resistance value.
3. Calibration is performed by exposing the probe to a known temperature, and adjusting the output circuit voltage or receiver values to correspond with the field conditions. Use an agitated ice water bath to expose the thermocouple probe to a value near 32 degrees Fahrenheit. Test the temperature with a separate, calibrated, thermometer. Adjust the output or receiver value to correspond with the measured temperature. When this step is complete, expose the thermocouple probe to an elevated temperature, in the 100 degree Fahrenheit range and allow the output reading to stabilize.
4. Adjust the output or receiver to correspond with the measured temperature. This completes the "span adjustment".

Differential Pressure Transducer

1. Differential transmitters measure two pressure values, compare them, and display the difference, or differential value. Differential pressure values are a measurement of pressure drop across a fixed resistance. Differential pressures are

measured across orifice plates to measure flow, or across meters to measure efficiency. Accurate calibrated gauges are required to measure differential pressure.

2. Testing and calibrating differential pressure transducers requires either a pair of calibrated mechanical gauges, or a calibrated electronic differential gauge. Use the correct gauge tap locations on the gas piping system for installation of the gauges. Placement too far upstream or too far downstream will result in errors.
3. METHOD 1 – install one of the calibrated mechanical gauges upstream of the differential pressure transducer. Install another calibrated mechanical gauge on the downstream side of the differential pressure transducer. Both calibrated mechanical gauges should be connected at the same time – don't try to move one gauge from one side to the other to obtain the readings. Read both gauges simultaneously. The positive value difference in gauge pressure reading is the differential pressure across the differential pressure transducer. Record this value, and adjust the output of the differential pressure transducer to correspond to the calculated value.
4. METHOD 2 – Install one hose fitting from the calibrated electronic differential gauge to the upstream side of the differential pressure transducer, and install the other hose fitting to the downstream side of the differential pressure transducer. If the instrument requires that one hose fitting be on the higher-pressure side, install the hoses accordingly. Read the differential pressure value and record it. Adjust the output of the differential pressure transducer to correspond to the observed calibrated electronic differential gauge value.

Repair/Replacement of Sensing Devices

1. Repair and replacement of sensing devices may require opening the gas flow stream. If instrument shut – off valves are available, use them to isolate the device to be repaired/replaced. Otherwise, isolate the gas piping segment containing the device.
2. Disconnect the deice wiring and remove the device from the piping system, usually using a threaded connection or a compression fitting. Sometimes the wiring is specific to the device and must be reused or replaced. Install the replacement device in the reverse order of removal. Use pipe compound or Teflon tape on threaded fittings. Test for leaks after gas pressure has been restored. Replace the wiring connections and use correct electrical connections and insulation. Re – test device output values and set points.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

None.

B31Q Task # 0301	**Page 1 of 2**
Revision date: 4/14/08	**Version: 2.1**
Manually Opening and Closing Valves	**TAB# 20**

SCOPE AND PURPOSE

This procedure is to ensure the proper manual operation of valves (opening and closing). This is not applicable to throttling valves for flow control (Task #0311).

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that valves are operated as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Do not operate valve if lightning is present.

EQUIPMENT AND MATERIALS

Valve key wrench.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform manual operation of valves. Refer to the OQ Plan for specific qualification requirements.

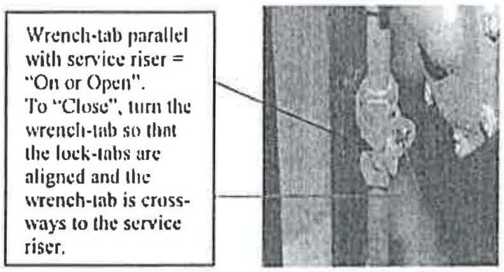
INSTRUCTIONS

a. ***Prior to Opening or Closing a Valve***
- Identify the valve(s) to be operated.
- Identify the valve type (plug, ball, and gate), as the valve type will have a bearing on "how" this valve is operated (1/4 turn, multiple turn, etc.).
- Confirm that the valve(s) chosen is the correct valve(s) to control the desired segment of pipeline.
  - o If the valve(s) is an emergency valve, verify that it is clearly identified and documented as an emergency valve.
- Determine whether the valve(s) is:
  - o Normally Open, or
  - o Normally Closed
- If possible, notify the following personnel that may be affected by this operation:
  - o Operating Personnel
  - o Customers

b. ***Opening of Valves***
- Verify the original position of the valve(s) before operating.
- Ensure that the valve is free of visible debris, corrosion, or damage that may hamper the operation of the valve.
- Verify that:
  - o All work has been completed and the valve(s) is ready to be opened;
  - o That any and all meter sets affected by this operation have been turned off at the service riser; and,
  - o Appropriate personnel are notified.
- Using the appropriate tool, slowly open the valve(s).
- Verify the segment involved is operating at its correct pressure.
- Perform "lock-out" "tag-out", as required by Operation and Maintenance Manual.

c. ***Closing of Valves***
- Verify the original position of the valve(s) before operating.
  - o "Valve-stops", common in larger valves, enable the user to determine the position of the valve(s) – Turn clockwise to "Close" and counter-clockwise to "Open".
  - o Small valves at service risers may or may not be equipped with "valve-stops", but the position of the valve can be determined by observing the position of the wrench-tab in relation to the service riser.

(TASK#0301-Page 2 of 2)



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- Ensure that the valve(s) is free of visible debris, corrosion, or damage that may hamper the operation of the valve(s).
- Using the appropriate tool, close the valve(s).
- Perform "lock-out" "tag-out", as required by Operation and Maintenance Manual.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0331 – Valve – Visual Inspection and Partial Operation.
0341 – Valve – Preventive Maintenance.

B31Q Task # 0311	**Page 1 of 2**
Revision date: 10/22/08	**Version: 2.0**
Adjust or Monitor Flow or Pressure-Manual Valve Operation	**TAB# 21**

SCOPE AND PURPOSE

This procedure is to ensure when personnel adjust and monitor gas flow or pressure by manually operating valves that this operation is performed in a manner that ensures protection of downstream gas facilities from overpressure conditions.

It describes practices required to comply with §192.201.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when adjusting and monitoring gas flow or pressure by manually operating valves, that it is performed as described in this procedure.

PERSONNEL

SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records.
Bypass valve keys and/or wrenches.
Pressure gauges.
Other equipment and materials, as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

1. Ensure by using company maps and records that the proper valve to be used for adjustment and monitoring of gas flow or pressure is identified correctly.
2. Install a pressure gauge of the proper pressure span just downstream of the identified valve to be operated.
3. Ensure that the Maximum Allowable Operating Pressure (MAOP) of the downstream piping facilities is known before operating the identified valve.
4. Prior to operating the identified valve, ensure that notification to management and/or operations personnel of the intent to adjust and monitor flow or pressure using a valve has been communicated.
5. Manually operate the identified valve in order to control downstream pressure at or below the normal system operating pressure by throttling the identified valve open when normal system pressure falls, and throttling the identified valve closed when normal system pressure increases, as identified on the gauge.
6. Continue performing the throttling effort until manual valve operation to adjust and monitor gas flow or pressure is no longer necessary. At this point, fully close the identified valve, lock the valve into the closed position if required, and carefully remove the gauge.
7. Properly seal, cap, or plug the gauge tap fitting to a gas tight condition.
8. Manual valve throttling must be consistently attended during the entire process in order to ensure protection from over pressuring of downstream gas facilities. NEVER LEAVE AN IDENTIFIED BYPASS VALVE UNATTENDED DURING MANUAL OPERATION TO ADJUST AND MONITOR FLOW AND PRESSURE.

9. Gas flow rate can only be accurately adjusted and monitored using a properly sized gas metering device installed downstream of the gauge.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0301 – Manually Opening and Closing Valves.

* **B31Q Task # 0321**	**Page 1 of 3**
Revision date: 8/26/08	**Version: 2.0**
Valve Corrective Maintenance	**TAB# 22**

SCOPE AND PURPOSE

This procedure is to ensure when personnel repair, refurbish, replace valves, other than service riser valves upstream of customer meters, that these efforts are performed in a safe manner and according to valve manufacturer recommendations. It describes practices required to comply with §192.747 (b).

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when performing repair, refurbishment, or replacement of valves, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

System maps and records.
Valve actuation/operation tools, as necessary.
Valve lubrication tool/gun, as necessary.
Valve flush/lubricant, as necessary.
Flange separating tool, as necessary.
Routine hand tools.
Other equipment and materials, as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

Maintenance Steps

a. Polyethylene Ball Valve Refurbishment/ Repair
   - Polyethylene ball valves are not typically manufactured with lubrication ports and these valves utilize internal Teflon-type seals to achieve positive shut off.
   - Excessive torsional loading can damage valve end fusions and excessive torque can damage internal valve parts. Polyethylene ball valves that cannot be operated or cannot be shut off to a gas tight position should be replaced.

b. Steel Ball/Plug Valve Refurbishment/Repair
   - Steel ball valves exhibiting external corrosion, and/or outside force damage, may cause valve leakage that should be promptly investigated.
   - Partial valve operation should first be performed; however, any valve that will not operate should not be subjected to forced operation using a "cheater" since this practice can cause permanent valve damage and potential hazardous leakage.
   - Internal icing, foreign material, and corrosion can cause a steel ball or plug valve to be difficult to operate.
   - Some steel ball valves are manufactured with lubrication ports, while most steel plug valves are manufactured with lubrication ports. If lubrication ports are available, replace any damaged lubrication ports before proceeding. Caution should be taken when replacing lubrication ports that are under gas pressure.

- A valve lubrication tool/gun equipped with a pressure gauge can be used as a troubleshooting tool when operated according to manufacturer recommendations.
- Attempt to lubricate and partially operate the valve. If the valve will not accept lubricant, valve flush can be used with the lubrication tool.
- Caution should be taken when injecting these materials as excessive flush/lubricant may travel downstream. Only enough flush should be used to displace old valve lubricant. Follow the valve flush manufacturer's recommendations for "soak" time.
- After "soak" time, attempt to partially operate the valve. If the valve appears to remain seized, lubricate the valve and again attempt partial operation. Use only enough lubricant to displace the valve flush. If partial operation is achievable, attempt full open/close operation as long as a gas service outage will not result.
- If gland seals are present, ensure that gland seals are leak tight.
- A plug valve that is <u>not</u> under gas pressure usually can be disassembled in place and repaired prior to final lubrication.

c. Steel Ball/Plug Valve Replacement – Flanged
   - Gas pressure should be reduced or eliminated prior to removal and replacement of a valve.
   - Piping support may be required after excavation of the valve.
   - Flanged valves should be removed by loosening the flange bolts leaving one or two bolts in place until just prior to complete valve removal.
   - Ensure that new bolts, washers, and nuts of the proper rating are available for replacement of those that may be damaged or unserviceable. Replacement flange gaskets of the proper material and rating will also be required.
   - A flange separating tool may be required in order to remove and replace the valve and associated gaskets.
   - Install the new flanged valve, new gaskets, and bolts, washers, and nuts. Tighten all bolts in a sequential fashion to avoid flange misalignment and leakage. Valve manufacturer torque specifications may be required for bolt tightening.
   - Leak test the new flange assemblies using an acceptable liquid leak detection solution at system operating pressure. Retighten flanges, as necessary, until no leaks are present.

d. Steel Ball/Plug Valve Replacement – Threaded
   - <u>Threaded valves should never be installed on a pipeline that is to be buried</u>.
   - Gas pressure should be reduced or eliminated prior to removal and replacement of a valve.
   - Piping support may be required before and after valve removal.
   - Threaded valves require the use of pipe wrenches of sufficient size to facilitate removal and replacement.
   - Apply a sufficient amount of thread sealant, thread tape, or a combination of these only to male threaded pipe ends and never to female threads inside the valve body.
   - Tighten the piping and valve threads together only enough to prevent gas leakage.
   - Leak test the new threaded assemblies using an acceptable liquid leak detection solution at system operating pressure. Retighten, as necessary, until no leaks are present.

e. Steel Ball/Plug Valve Replacement – Welded
   - Gas pressure should be reduced or eliminated prior to removal and replacement of a valve.
   - Piping support may be required after excavation of the valve.
   - After acceptance of the welds and appropriate cooling time, leak test the new threaded assemblies using an acceptable liquid leak detection solution at system operating pressure.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0301 – Manually Opening and Closing Valves
0331 – Valve – Visual Inspection and Partial Operation.
0341 – Valve – Preventive Maintenance.
0801-0811 – Welding & Visual Inspection of Welding and Welds.
1241 – Outside Gas Leak Investigation.
1321-1341 – Damage Prevention & Provide or Assure Adequate Support during Excavation Activities By or On Behalf of the Operator.

B31Q Task # 0331-0341	**Page 1 of 2**
Revision date: 4/14/08	**Version: 2.1**
Valve-Visual Inspection & Partial Operation. **Valve-Preventative Maintenance.**	**TAB# 23**

SCOPE AND PURPOSE

This procedure is to ensure that:

- Each Transmission Line valve that may be required during an emergency is inspected and ***partially operated***; and
- Each valve that may be used for the safe operation of a Distribution system is checked and serviced, as needed.

It describes valve inspection and maintenance practices required to comply with §192.745 and §192.747.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that valve maintenance is performed at the intervals described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Do not perform valve maintenance if lightning is present.

Upon approaching a valve or valve enclosed in a valve box, check the atmosphere around the valve or valve box for the presence of a gas leak. Repair or schedule for repair any leak detected in accordance with stated procedures.

EQUIPMENT AND MATERIALS

Leak Detector Equipment.
Valve Key Wrench.
Valve Cleaner (If Needed).
Valve Lubricant As Specified by Valve Manufacturer (As Needed).
Valve Sealant (If Needed).
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform valve maintenance. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. Obtain records of valve to be inspected along with other documentation needed to record the actions taken on the jobsite.
b. While approaching each valve, perform a visual examination of the area for signs of conditions that may interfere with proper access to the valve such as:
   - Paving over of valve or valve box
   - Excavation or landscaping activities covering valve or valve box
   - Objects permanently placed over top of valve or valve box
   - Vandalism
c. If valve is underground, check valve box cover for proper fit, support, and ensure that the proper product designation is stamped on the valve box lid.
d. If valve or valve box is equipped with a locking device, ensure proper operation – lubricate as needed.
e. ***If Valve is Above-Ground***
   i. Perform a visual check of the valve to identify:
      - Initial valve position ("Open" or "Closed").
      - Orientation of the valve in relation to the valve stops, if any.
      - Excess dirt, rust, or foreign materials that may interfere with the operation of the valve.
   ii. Remove any excess dirt, rust, or foreign materials that may interfere with the operation of the valve.
   iii. Check the valve for proper alignment to permit the use of a key or wrench.
   iv. For valves that are to be partially operated (required for Transmission Lines), care shall be taken to ensure

that valves that should be "open" are left open and valves that should be "closed" are left closed.

- Check the valve for proper lubrication.
- These valves should only be operated to the extent necessary to establish operability of the valve – *Extreme care* should be taken to return these valves to the proper "open" or "closed" position.

v. If lubrication is needed, *DO NOT OVER-LUBRICATE* the valve – over-lubrication may force excess grease into the gas stream and cause a stoppage and/or hamper the proper operations of downstream equipment – *ALWAYS Follow Manufacturer's Guideline for Greasing Valves.*

vi. Upon completion of the inspection, verify that the valve is in the proper position.

vii. Check the valve for leaks.

f. ***If Valve Is Below-Ground***

i. Perform a visual check of the valve to identify:

- Initial valve position ("Open" or "Closed").
- Orientation of the valve in relation to the valve stops, if any.
- Excess dirt, rust, or foreign materials that may interfere with the operation of the valve.

ii. Remove any excess dirt, rust, or foreign materials that may interfere with the operation of the valve.

iii. Verify proper alignment of the valve box over the valve.

- Verify that a valve wrench or valve key will align through the valve box through to the valve operating nut – If alignment cannot be made, note for scheduled repair or repair immediately.

iv. For valves that are to be partially operated (required for Transmission Lines), care shall be taken to ensure that valves that should be "open" are left open and valves that should be "closed" are left closed.

- Check the valve for adequate lubrication.
- These valves should only be operated to the extent necessary to establish operability of the valve – *Extreme care* should be taken to return these valves to the proper "open" or "closed" position.

v. If lubrication is needed, *DO NOT OVER-LUBRICATE* the valve – over-lubrication may force excess grease into the gas stream and cause a stoppage and/or hamper the proper operations of downstream equipment – *ALWAYS Follow Manufacturer's Guideline for Greasing Valves.*

vi. Upon completion of the inspection, verify that the valve is in the proper position.

vii. Check the valve for leaks.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual

RELATED PROCEDURES

0301 – Manually Opening and Closing Valves

B31Q Task # 0381-0391-0411-0421	**Page 1 of 6**
Revision date: 6/25/08	**Version: 2.0**
Spring-Loaded and Pilot-Operated Pressure Regulating, Limiting and Relief Devices: Inspection, Testing, Preventative and Corrective Maintenance	**TAB# 24**

SCOPE AND PURPOSE

This procedure is to ensure that each pressure limiting/regulating station and relief device (except rupture discs) is inspected/tested as required under §§192.739 & 192.743.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that regulator station inspection and testing is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

If any of these devices is located in a pit, then appropriate confined space entry precautions should be taken.

EQUIPMENT AND MATERIALS

Necessary equipment and materials to perform the task, such as, but not limited to:

- Hand tools.
- Leak detection equipment (soap).
- Manufacturers' manuals, as needed.
- Gauges.
- Valve wrench.
- Nitrogen or inert gas, if used.
- Repair kits, as needed.
- Other equipment and materials as needed.

Operator Qualification

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform regulator station inspection and testing. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

Calibration of Instruments

Each instrument used in this procedure shall be calibrated in accordance with the manufacturers' recommended calibration instructions.

Inspection/Maintenance Steps

- Obtain records of regulator stations to be inspected along with other documentation needed to record the actions taken at the jobsite.
    - These records should contain the necessary information to perform the inspection.
    - Capacity shall be determined by either:
        - Testing the device in place; or
        - Review and calculations except that, after initial calculations, subsequent calculations need not be made if the annual review verifies that parameters have not changed to cause the rated or experimentally determined relieving capacity to be insufficient.
- Notify appropriate personnel of intent to perform maintenance on a device.

a. *Visual Inspection*

1. Upon approaching the jobsite, verify that:
   i. The area is secured –
      - If the station is inside a building or inside a fence, verify that the building or fence gate is locked.
      - If the station is in the open, verify that all valves pertinent to the safe operation of the station are tamper resistant (Bypass valve(s), relief valve isolation valve(s), etc.).

   ii. Adequate protection exists against accidental damage by vehicular traffic or other similar causes, either by being placed:
      - At a safe distance; or
      - Behind barricades

   iii. The appropriate signage/line markers is in place, legible, and contains the following information:
      - No Smoking/Danger
      - Line Markers
      - Other information as deemed appropriate
2. Perform a visual inspection of the regulator station checking for any condition that may prevent proper operation, such as, but not limited to:
   i. Visible damage
   ii. Deterioration
   iii. Atmospheric corrosion
   iv. Blockage of Vents

b. *Valve/Valve Operations*

1. Remove locking devices on all valves necessary for the performance of this task (Bypass valves and block valves).
2. Prior to beginning the inspection, ensure that all valves that will be needed during the inspection are accessible, operating properly, and correctly positioned such as, but not limited to:
   i. Station inlet, outlet, and bypass valves
   ii. Relief device isolation valves
   iii. Control, sensing, and supply line valves
3. ***Exercise the valve(s) only to the extent necessary to verify proper operation.***

c. Regulator Station w/ Relief

1. Regulator station equipment shall be checked for leaks before and after the inspection – leaks shall be repaired in accordance with company policy.
2. Install pressure gauge(s) as needed to verify and monitor system pressure during the inspection (Note: Steps # 1 & # 2 may be performed in reverse order).
3. Check the operation of the regulator(s)
   i. Confirm or determine and record current set points.
   ii. Close the outlet valve to the regulator station – *Care shall be taken to monitor the outlet system pressure – Operate bypass valves as needed – See **Section e, Maintaining Bypass.***
   iii. Monitor pressure gauge(s) and record the pressure:
      - o Of the set-point of the regulator
      - o At which the regulator achieves lockup, if it is designed to do so
   - Each regulator should be in good working order, control at its set pressure, operate smoothly, and shut off within acceptable limits. If acceptable operation is not obtained during this check, an internal inspection shall be performed.
      - o ***(See Section f, Internal Inspection Procedures)***

- At the operators' discretion, taking into consideration the operating history of the components being inspected, an internal inspection may be performed as a part of this inspection.
  - o ***(See Section f, Internal Inspection Procedures)***

4. If the regulator passes inspection, open the outlet valve – ***monitor pressure gauge(s) to ensure that regulator assumes control and does not exceed the MAOP.***
5. Check the relief valve set point.
   i. Install pressure gauge(s) as needed to monitor the pressure at which the relief valve activates.
   ii. Ensure that the relief valve isolation valve is turned off.
   iii. Test for the correct relief setting by applying gas pressure to the test connection.
   iv. Monitor the pressure gauge(s) and record the pressure (set-point) at which the relief valve "opens" and begins relieving.
   - Each relief valve should be in good working order, control at its set pressure, operate smoothly, and shut off within acceptable limits. If acceptable operation is not obtained during this check, an internal inspection shall be performed.
     - o ***(See Section f, Internal Inspection Procedures)***
   - At the operators' discretion, taking into consideration the operating history of the components being inspected, an internal inspection may be performed as a part of this inspection
     - o ***(See Section f, Internal Inspection Procedures)***

   v. Remove the gas from the test connection and verify that the relief valve "closes" and stops relieving.
   vi. Open relief valve isolation valve
6. Install locking devices as required to prevent unauthorized operation of any stop valve that will make the pressure relief valve or pressure limiting device inoperative by means such as, but not limited to:
   i. Verifying that the regulator station is inside a fence or building that will limit access to unauthorized personnel; or
   ii. Installing locking devices on bypass valves, control line valves, and relief valve isolation valve – locking devices may also be installed on the inlet/outlet valves to the regulator station at the operator's discretion.
7. Determine if additional inspection(s) or maintenance work is required as a result of this inspection.
   i. This may include internal inspections of regulator(s) and/or relief valve(s) ***(See Section f, Internal Inspection Procedures)***
   ii. This may also include maintenance tasks that require scheduling.
8. Re-Verify that all valves that should be "Open" are open and all valves that should be "Closed" are closed.
9. Re-Verify that all valves that are required to have locking devices are locked to prevent unauthorized access.
10. Ensure that ID tags denoting set-pressure(s) are installed as needed.

d. <u>Monitor Regulator Station</u>

1. Ensure pressure gauge(s) are installed and verify that the station is supplying the proper pressure.
2. Verify which regulator is the "primary" regulator and which regulator is the "monitor" regulator.

3. Check the operation of the "primary" regulator.
   i. Close the outlet valve to the regulator station – *Care shall be taken to monitor the outlet system pressure – Operate bypass valves as needed* – ***See Section e, Maintaining Bypass.***
   ii. Monitor pressure gauge(s) and record the pressure at which the "primary" regulator achieves lockup.
      - Each regulator should be in good working order, control at its set pressure, operate smoothly, and shut off within acceptable limits. If acceptable operation is not obtained during this check, an internal inspection shall be performed.
         - ***(See Section f, Internal Inspection Procedures)***
      - At the operator's discretion, taking into consideration the operating history of the components being inspected, an internal inspection may be performed as a part of this inspection
         - ***(See Section f, Internal Inspection Procedures)***
4. Check the operation of the "monitor" regulator.
   i. Adjust the pressure of the primary regulator so that the set-point of the monitor regulator is achieved.
   ii. Monitor pressure gauge(s) and record the pressure at which the monitor regulator assumes control and achieves lock-up.
      - Each regulator should be in good working order, control at its set pressure, operate smoothly, and shut off within acceptable limits. If acceptable operation is not obtained during this check, an internal inspection shall be performed.
         - ***(See Section f, Internal Inspection Procedures)***
      - At the operators' discretion, taking into consideration the operating history of the components being inspected, an internal inspection may be performed as a part of this inspection.
         - ***(See Section f, Internal Inspection Procedures)***
5. Return regulator station to normal operation.
   i. Adjust the primary regulator to less than set-point.
   ii. Relieve the pressure between the outlet valve and the regulator.
   iii. Adjust and set primary regulator to the desired set-point.
   iv. Open outlet valve of regulator station – ***monitor pressure gauge(s) to ensure that regulator assumes control and does not exceed the MAOP.***
6. Install locking devices as required to prevent unauthorized operation of any stop valve that will make the pressure relief valve or pressure limiting device inoperative by means such as, but not limited to:
   i. Verifying that the regulator station is inside a fence or building that will limit access to unauthorized personnel; or
   ii. Installing locking devices on bypass valves, control line valves, and relief valve isolation valve – locking devices may also be installed on the inlet/outlet valves to the regulator station at the operator's discretion.
7. Determine if additional inspection(s) or maintenance work is required as a result of this inspection.

   i. This may include internal inspections of regulator(s) ***(See Section f, Internal Inspection Procedures)***
   ii. This may also include maintenance tasks that require scheduling.
8. Re-Verify that all valves that should be "Open" are open and all valves that should be "Closed" are closed.
9. Re-Verify that all valves that are required to have locking devices are locked to prevent unauthorized access.
10. Ensure that ID tags denoting set-pressure(s) are installed as needed.

e. Maintaining By-Pass
1. Ensure that section ***b, Valve/Valve Operations*** of this procedure has been performed.
2. Verify that all necessary gauges are installed to monitor the downstream pressure.
3. Position valve wrenches/keys so that bypass valves are readily accessible.
4. While monitoring downstream pressure, increase/decrease pressure as needed to maintain the desired pressure – ***extreme care shall be taken not to exceed the MAOP of the system.***
5. At the conclusion of the bypass operation, slowly close the bypass valve and verify:
   i. That the regulator takes over pressure control
   ii. That the regulator is working properly
6. Install locking devices as required to prevent unauthorized operation of any stop valve that will make the pressure relief valve or pressure limiting device inoperative by means such as, but not limited to:
   i. Verifying that the regulator station is inside a fence or building that will limit access to unauthorized personnel; or
   ii. Installing locking devices on by-pass valves, control line valves, and relief valve isolation valve – locking devices may also be installed on the inlet/outlet valves to the regulator station at the operator's discretion.
7. Re-Verify that all valves that should be "Open" are open and that all valves that should be "Closed" are closed.
8. Re-Verify that all valves that are required to have locking devices are locked to prevent unauthorized access.

f. Internal Inspection Procedure
1. ***See Section b, Valve/Valve Operations.***
2. Isolate the regulator requiring internal inspection – *Care shall be taken to monitor the outlet system pressure – Operate by-pass valves as needed –* ***See Section e, Maintaining Bypass***.
3. Safely release gas in the isolated segment into the atmosphere.
4. Perform internal inspection of regulator:
   i. Check for obstructions, trash, or debris
   ii. Check for damage to internal components
5. Install new parts as needed.
6. Repair any leaks discovered.
7. Follow manufacturer's start-up procedure and check for proper operation:
   i. Regulator shall take control of the flow of gas
   ii. Regulator shall demonstrate proper lock-up
8. Set the regulator to the correct system pressure.
9. Verify that all leaks have been repaired.
10. Install locking devices as required to prevent unauthorized operation of any stop valve that will make the pressure relief valve or pressure limiting device

inoperative by means such as, but not limited to:

i. Placing the regulator station inside a fence or building that will limit access to unauthorized personnel; or
ii. Installing locking devices on by-pass valves, control line valves, and relief valve isolation valve – locking devices may also be installed on the inlet-outlet valves to the regulator station at the operator's discretion.

11. Ensure that ID tags denoting set-pressure(s) are installed as needed

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0591 – Leak Test at Operating Pressure.

B31Q Task # 0571	**Page 1 of 2**
Revision date: 6/25/08	**Version: 2.0**
Pressure Test-Nonliquid Medium-MAOP Greater Than or Equal to 100 psi	**TAB# 25**

SCOPE AND PURPOSE

This procedure is to ensure adequate pressure testing of pipeline systems operating at or above 100 psig and to ensure discovery of all potentially hazardous leaks in the segment being tested as required under §192.507. Other related code sections include §§192.511, 192.513, & 192.725.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that pressure testing is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Test Device/Gauges/Recording Instruments.
Test Medium (Nitrogen, Air, etc.).
Leak Detection Equipment (Soap, CGI etc.).
Fittings.
Other Equipment as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform pressure testing for pipelines operating at or above 100 psig. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Pressure Testing Steps

a. Verify the following information prior to beginning the pressure test:
   i. Maximum Allowable Operating Pressure (MAOP) of the segment to be pressure tested.
   ii. Maximum Operating Pressure (MOP) of the segment to be pressure tested.
   iii. The minimum and maximum test pressure for the segment to be pressure tested (see section f., items i-iv.).
   iv. The test duration of the segment to be pressure tested (see O&M Manual).
   v. The test medium to be used for the pressure test.
b. Ensure that pressure gauges/recording instruments have been calibrated in accordance with company procedures and manufacturers' specifications.
c. Ensure that segment to be pressure tested is:
   i. Isolated from any customer piping to prevent the pressure test from being introduced into customer piping.
   ii. Isolated from the source of gas (to prevent the pressure test from being introduced into the gas stream).
d. Ensure that the pipe end receiving the test gauge is cleaned prior to the installation of the test gauge.
e. Install test gauge on the isolated segment to be pressure tested.
f. Using the test medium (Air, Nitrogen), pressurize the isolated segment according to the following:
   i. For steel mains and services operating at a pressure greater than or equal to 100 psig:
   - 1.5 times the MAOP or the maximum operating pressure multiplied by the class location factor in §192.619(a)(2)(ii).

   ii. For plastic pipelines:
   - 1.5 times the MAOP or 50 psig, whichever is greater; however,

- o The maximum test pressure may not be more than three times the design pressure at a temperature not less than the pipe temperature during the test.
- o During the test, the temperature of the plastic pipe may not be more than 100°F.

g. Record the initial time of the pressure test.
h. Soap-test the test-gauge and related fittings.
i. Maintain and observe the test pressure for the required test duration (see O&M Manual).
   i. Investigate and repair all leaks discovered during the pressure test.
   ii. Apply a new pressure test once leaks have been repaired.
j. If the pressure test reveals that the isolated segment being pressure tested is free of leakage, slowly relieve the pressure from the isolated segment.
k. Remove testing device, gauges, and other related fittings.
l. Connect the isolated section to the source of gas.
m. Test the final connection(s) for leaks using a soap-test or other leak detection equipment.
n. Purge the test medium from the previously isolated segment (Task #1641-1651).
o. Document the work performed as outlined in Reporting/Notification below.

REPORTING/NOTIFICATION

The following minimum information shall be recorded and kept of each test required by §192.517:

- The operator's name, the name of the employee responsible for making the test, and/or the name of any test company used.
- The test medium used (i.e. Air, Nitrogen).
- The test pressure.
- The test duration.
- The test date.
- Pressure recording charts or other record of pressure readings.
- Elevation variations, whenever significant for the particular test.
- Leaks and failures noted and their disposition.

RELATED PROCEDURES

0591 – Leak Test at Operating Pressure

B31Q Task # 0581	**Page 1 of 2**
Revision date: 10/22/08	**Version: 2.0**
Pressure Test-Liquid Medium	**TAB# 26**

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to perform pressure testing of pipeline utilizing a liquid medium such as water. It ensures the discovery of all potentially hazardous leaks in the segment being tested.

It describes leak test and strength test requirements under §§192.503 and 192.505.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that hydrostatic testing is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Test Device/Gauges/Recording Instruments.
Test Medium (Water).
Fittings.
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

General

Hydrostatic pressure testing requires the pipeline to be completely filled with a liquid such as water and pressurized to a level higher than the maximum allowable operating pressure. This test pressure is maintained for a specified period of time to confirm the integrity of the pipeline.

Preparation for Test

a. Verify the following prior to beginning the pressure test:
   i. Maximum Allowable Operating Pressure (MAOP).
   ii. Maximum Operating Pressure (MOP).
   iii. Minimum and maximum test pressure.
   iv. Class location
   v. The duration of test
   vi. Liquid test medium (water) source
   vii. Disposal method for test medium (water)
b. Ensure that pressure gauges/recording instruments have been calibrated in accordance with company procedures and manufacturer's specifications.

Steps

a. Isolate pipeline segment from source of gas and any customer piping by use of weld caps, blind flanges or other appropriate devices. Testing against closed valves should be avoided.
b. Install test gauge/chart on the isolated segment of pipeline to be pressure tested.
c. Insert specialty spheres or squeegees (pigs) into the pipeline segment then completely fill with water. Entrapped air is eliminated as the water pushes the pig(s) through the pipeline.
d. Pressurize pipeline by the use of compressors or pumps. Caution should be used so that over-pressurization does not

occur. Maintain and observe the test pressure for the required test duration. Whenever testing long segments and/or large diameter pipe, the duration of the test should be long enough to be certain that the temperature of water has stabilized. Backfill prior to hydrostatic testing; this helps to stabilize the temperature of the liquid medium (water).

i. If the pressure stays constant, the test is considered successful.
ii. Leaks are indicated by a drop in pressure. Any indication of leakage requires remedial action. The pipeline segment is then re-pressurized and the test is repeated.
iii. Whenever there is a significant change in elevation, the pressure in the pipeline segment will be equal to the indicated gage pressure plus or minus elevation change depending upon gage location. Compensate as necessary.

e. Once the hydrostatic test is successfully completed, the test water is discharged from the pipeline by compressed air. The air compressors used for emptying the water from the pipeline segment should have ample capacity in both volume and pressure to allow the pigs to travel through the pipe. Continue pig runs until the pipeline segment is as dry as practically possible. When necessary, implement any erosion prevention practices for the removal and discharge of the water.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual

RELATED PROCEDURES

0591-Leak Test at Operating Pressure

B31Q Task # 0591	**Page 1 of 1**
Revision date: 6/25/08	**Version: 2.0**
Leak Test at Operating Pressure	**TAB# 27**

SCOPE AND PURPOSE

This procedure is to ensure adequate leak testing at operating pressure and to ensure discovery of all potentially hazardous leaks in the segment being tested as required under §192.503. Other related code sections include §§192.511, 192.513, & 192.725.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that pressure testing is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Leak Detection Equipment (Soap solution, CGI, etc.).
Other Equipment as Needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform leak testing at operating pressure. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Pressure Testing Steps

a. Typically, the final joint/fitting that is used to tie in a segment of pipeline is not subjected to a pressure test. Therefore, each joint that is used to tie in a segment of pipeline shall be leak tested at not less than its operating pressure.
b. Once the operating pressure has been introduced to the pipeline segment and the pressure has stabilized, leak test the final joint/fitting using either:
   i. A soap solution – The soap solution is typically brushed or sprayed on the joint/fitting; visually inspect the joint/fitting to check for signs of leakage (bubbling of the soap solution on the joint/fitting indicates leakage).
   ii. CGI or other gas detector capable of detecting leakage – Using the instrument, obtain samples of the air around the joint/fitting to check for signs of leakage (a reading on the instrument indicates leakage).
c. Repair any leaks discovered in accordance with company policy.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0381-0391-0411-0421 – Spring-Loaded and Pilot-Operated Pressure Regulating, Limiting, and Relief Devices: Inspection, Testing, Preventative and Corrective Maintenance.
0561 – Pressure Test – Non-Liquid Medium – Test Pressure below 100 psig.
0571 – Pressure Test – Non-Liquid Medium – Test at or Above 100 psig.

B31Q Task # 0601	**Page 1 of 1**
Revision date: 10/22/08	**Version: 2.0**
NDT-Radiographic Testing	**TAB# 28**

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to ensure that through-the-wall inspection using radiography and the evaluation of test results are performed in accordance with American Society of Nondestructive Testing (ASNT) standards.

It describes practices required to comply with §192.243(a).

RESPONSIBILITY

The Pacific Energy & Mining Company, or other designee, is responsible to ensure that radiographic testing is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Radiography Equipment
Hand Tools
Other Equipment and Materials as Needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

General

This activity will be performed by personnel having Level II qualification in accordance with ASNT SNT-TC-1A standards.

Steps

Pacific Energy & Mining Company will obtain and adopt procedures for this Task prior to the performance of the Task.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual

RELATED PROCEDURES

None.

B31Q Task # 0611	Page 1 of 1
Revision date: 10/22/08	Version: 2.0
NDT-Liquid Penetrant Testing	TAB# 29

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to ensure that surface examination using liquid (dye) penetrant and the evaluation of test results are performed in accordance with American Society of Nondestructive Testing (ASNT) standards.

It describes practices required to comply with §192.243(a).

RESPONSIBILITY

The Pacific Energy & Mining Company, or other designee, is responsible to ensure that liquid penetrant testing is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Liquid Penetrant Materials and Equipment.
Hand Tools.
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

General

This activity will be performed by personnel having Level II qualification in accordance with ASNT SNT-TC-1A standards.

Steps

Pacific Energy & Mining Company will obtain and adopt procedures for this Task prior to the performance of the Task.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

None.

B31Q Task # 0621	**Page 1 of 1**
Revision date: 10/22/08	**Version: 2.0**
NDT-Magnetic Particle Testing	**TAB# 30**

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to ensure that surface examination using magnetic particle and the evaluation of test results are performed in accordance with American Society of Nondestructive Testing (ASNT) standards.

It describes practices required to comply with §192.243(a).

RESPONSIBILITY

The Pacific Energy & Mining Company, or other designee, is responsible to ensure that magnetic particle testing is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Magnetic Particle Equipment
Hand Tools
Other Equipment and Materials as Needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

General

This activity will be performed by personnel having Level II qualification in accordance with ASNT SNT-TC-1A standards.

Steps

Pacific Energy & Mining Company will obtain and adopt procedures for this Task prior to the performance of the Task.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

None.

B31Q Task # 0631	Page 1 of 1
Revision date: 10/22/08	Version: 2.0
NDT-Ultrasonic Testing	TAB# 31

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to ensure that through-the-wall inspection using ultrasonics and the evaluation of test results are performed in accordance with American Society of Nondestructive Testing (ASNT) standards.

It describes practices required to comply with §192.243(a).

RESPONSIBILITY

The Pacific Energy & Mining Company, or other designee, is responsible to ensure that ultrasonic testing is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Ultrasonic Equipment.
Hand Tools.
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

General

This activity will be performed by personnel having Level II qualification in accordance with ASNT SNT-TC-1A standards.

Steps

Pacific Energy & Mining Company will obtain and adopt procedures for this Task prior to the performance of the Task.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

None.

B31Q Task # 0691-0701	**Page 1 of 2**
Revision date: 8/26/08	**Version: 2.0**
Joining of Pipe-Non-Bottom Out & Bottom Out Compression Couplings	**TAB# 32**

SCOPE AND PURPOSE

This procedure includes the joining and inspection of pipe 2-inch and less with bottom out & non-bottom out compression couplings and inspection of completed joints. It describes the practices required by §192.273(b)(c).

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the joining of pipe using bottom out & non-bottom out compression couplings is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

Couplings/stiffeners as needed.
Wrenches.
Pipe/tubing cutter.
Soft felt-tip pen, crayon, or other marker.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

- The installation of bottom out & non-bottom out compression couplings shall be performed in accordance with the manufacturer's instructions.
- Verify that the coupling selected is the correct coupling for the application (correct size, type, etc.).

Non-Bottom Out Compression Coupling

Non–bottom out compression coupling is one that requires tightening to a specified torque or number of turns

a. Prepare the pipe
   - Cut the pipe end(s), ensuring that the pipe end(s) is square (within coupling manufacturer's tolerances)
   - Inspect the pipe for damage; cut out any damage found
   - Clean the pipe surface in the area of the coupling installation
   - Complete the pipe preparation in accordance with the coupling manufacturer's instructions

b. Using an appropriate type marker, mark the insertion depth in accordance with the manufacturer's instructions.

c. Assemble the coupling on the pipe following the coupling manufacturer's instructions.

d. Tighten the coupling to the specified torque as per the manufacturer's instructions.

Bottom Out Compression Coupling

Bottom out compression coupling is one that is designed to prevent over tightening by contact (bottoming out) of the nut with a square shoulder or mating face

a. Prepare the pipe
   - Cut the pipe end(s), ensuring that the pipe end(s) is square (within coupling manufacturer's tolerances)
   - Inspect the pipe for damage; cut out any damage found

(TASK#0691-0701-Page 2 of 2)

- Clean the pipe surface in the area of the coupling installation
- Complete the pipe preparation in accordance with the coupling manufacturer's instructions

b. Using an appropriate type marker, mark the insertion depth in accordance with the manufacturer's instructions.

c. Assemble the coupling on the pipe following the coupling manufacturer's installation instructions.

d. Tighten the coupling until the tightening nut contacts the square shoulder or mating face as per the manufacturer's instructions.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0561 – Pressure Test – Non-liquid Medium – MAOP less than 100 psi.
0571 – Pressure Test – Non-liquid Medium – MAOP greater than or equal to 100 psi.
0591 – Leak Test at Operating Pressure.
0641 – Visually Inspect Pipe and Components Prior to Installation.
0711 – Joining of Pipe – Compression Couplings.

B31Q Task # 0711	**Page 1 of 1**
Revision date: 8/26/08	**Version: 2.0**
Joining of Pipe-Compression Couplings	**TAB# 33**

SCOPE AND PURPOSE

This procedure includes the joining and inspection of pipe greater than 2-inch with compression couplings and inspection of completed joints. It describes the practices required by §192.273(b) & (c).

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the joining of pipe using compression couplings is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Couplings/stiffeners as needed
Wrenches
Pipe/tubing cutter
Soft felt-tip pen, crayon, or other markers
Other equipment and materials as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

- The installation of compression couplings shall be performed in accordance with the manufacturer's instructions.
- Verify that the coupling selected is the correct coupling for the application (correct size, type, etc.).

Installation

a. Prepare the pipe
   - Cut the pipe end(s), ensuring that the pipe end(s) is square (within coupling manufacturer's tolerances)
   - Inspect the pipe for damage; cut out any damage found
   - Clean the pipe surface in the area of the coupling installation
   - Complete the pipe preparation in accordance with the coupling manufacturer's instructions

b. Using an appropriate type marker, mark the insertion depth in accordance with the manufacturer's instructions.

c. Assemble the coupling on the pipe following the coupling manufacturer's instructions.

d. Tighten the coupling to the specified torque, hydraulic pressure, etc. as per the manufacturer's instructions.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0561 – Pressure Test – Non-liquid Medium – MAOP less than 100 psi
0571 – Pressure Test – Non-liquid Medium – MAOP greater than or equal to 100 psi
0641 – Visually Inspect Pipe and Components Prior to Installation
0591 – Leak Test at Operating Pressure
0691 – 0701 – Joining of Pipe – Bottom Out & Non-Bottom Out Compression Couplings

B31Q Task # 0721	**Page 1 of 1**
Revision date: 8/26/08	**Version: 2.0**
Joining of Pipe-Threaded Joints.	**TAB# 34**

SCOPE AND PURPOSE

This procedure includes the joining and inspection of threaded pipe with threaded fittings, and the inspection of completed joints. It describes the practices required by §192.273.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the joining of pipe using threaded fittings is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Threaded fittings
Wrenches
Pipe/thread sealant
Other equipment and materials as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

Verify that the fitting selected is the correct fitting for the application (correct size, type, etc.).

Installation

a. Inspect pipe, fitting, and pipe/fitting threads for
   - Damage
   - Deformities
   - Defects
   - Any other condition that may impair a gas tight connection
b. Remove/replace any fitting or section of pipe found to have any condition mentioned above.
c. Clean the threaded surfaces to remove any surface rust, dirt, etc.
d. Apply pipe thread sealant in accordance with the pipe thread sealant manufacturer's instructions.
e. Assemble the joint and tighten using the appropriate wrenches
   - Note: Unless the pipe/fitting is being installed with the use of a pipe vise or other acceptable method, it is recommended that two wrenches be used to tighten the fitting to the pipe
     - o One wrench is used to hold the pipe to help prevent other fittings from being loosened while the other wrench is used to tighten the fitting to the pipe
f. Inspect the completed joint for
   - Damage.
   - Deformities.
   - Defects.
   - Any other condition that may impair a gas tight connection

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0561 – Pressure Test – Non-liquid Medium – MAOP less than 100 psi.
0571 – Pressure Test – Non-liquid Medium – MAOP greater than or equal to 100 psi.
0591 – Leak Test at Operating Pressure.
0641 – Visually Inspect Pipe and Components Prior to Installation.

B31Q Task # 0731	**Page 1 of 2**
Revision date: 8/26/08	**Version: 2.0**
Joining of Pipe-Flange Assembly.	**TAB# 35**

SCOPE AND PURPOSE

This procedure includes the assembly of flanges, bolting in sequence and torqueing, as specified. It describes the practices required by §192.273.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the joining of pipe using flange assemblies is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Flanges.
Flange bolts & nuts.
Washers, as needed.
Flange gaskets, as needed.
Wrenches.
Torque wrench, as needed.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

Verify that the flange selected is the correct flange for the application (correct size, ANSI Class etc.), and all necessary and appropriate bolts, nuts, and gaskets are installed.

Flange Assembly

a. Clean the sealing surfaces of the flanges and verify that they are clean and smooth.
b. The sealing faces of the flanges should be installed parallel to each other.
c. Ensure that the flanges are aligned so that all flange bolts will fit through the flange bolt-holes.
d. Using the appropriate gasket, if required, install the gasket between the two flanges
   - It may be necessary to install a couple of flange bolts in the bottom bolt-holes of the flanges to keep the gasket from dropping out of the bottom of the flange
e. Verify that the gasket is installed against the sealing surfaces of the flanges.

Bolting Methods/Torque Values

a. Methods for tightening flange bolts may include the use of torque wrenches.
b. The proper bolt torque values are based on
   - gasket material
   - flange size
   - flange type
   - flange rating
   - bolt size
   - bolt material
   - washer material
   - thread lubricant

   When available, the gasket manufacturer's recommended torque values should be followed
c. Flange bolts should be lubricated prior to installation by
   - Using pre-coated bolts
   - By field application of thread lubricants

Example

1. Bolt torque should be applied evenly across the flange. Always follow the gasket manufacturer's recommendations for tightening of flanges with nut and bolt.

a. Using a "star" or "crisscross" pattern,
   i. Install and hand tighten all bolts and nuts – to include any insulating kits as needed
   ii. Using a wrench:
      - tighten all bolts and nuts to approximately 30% of final torque
      - Tighten all bolts and nuts to approximately 60% of final torque
      - Tighten all bolts and nuts to 100% of final torque
b. Final tightening process:
   - Follow a circular pattern and ensure that all bolts are tightened to 100% of final torque

2. Visually inspect completed joint, checking for signs of
   - Damage
   - Deformities
   - Defects
   - Any other condition that may impair a gas tight connection

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0561 – Pressure Test – Non-liquid Medium – MAOP less than 100 psi.
0571 – Pressure Test – Non-liquid Medium – MAOP greater than or equal to 100 psi.
0591 – Leak Test at Operating Pressure.
0641 – Visually Inspect Pipe and Components Prior to Installation.

B31Q Task # 0801-0811	**Page 1 of 1**
Revision date: 8/26/08	**Version: 2.0**
Welding and Visual Inspection of Welding and Welds.	**TAB# 36**

SCOPE AND PURPOSE

This procedure establishes criteria for qualification of pipeline welding procedures and qualification of persons performing welding, according to the established and qualified procedures in accordance with 49 CFR Subpart E, *Welding of Steel in Pipelines*, API Standard 1104, *Standard for Welding Pipelines and Related Facilities or ASME Section IX, Boiler and Pressure Vessel Code.* All definitions and materials references comply with the provisions of API Standard 1104 or *ASME Section IX, Boiler and Pressure Vessel Code.*

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when welding steel pipe and associated fittings, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

All welding personnel are to utilize proper welding equipment, tools as required for each pipeline weld according to the company's qualified welding procedures.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Welding and Visual Inspection of Welding and Welds shall be performed in accordance with the operator's qualified welding procedures.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

B31Q Task # 0821	**Page 1 of 2**
Revision date: 10/22/08	**Version: 2.0**
Tubing & Fitting Installation-Instrument, Control & Sampling	**TAB# 37**

SCOPE AND PURPOSE

This procedure includes the preparation, bending, joining, and installation of instrument, control and sampling line tubing & fittings containing product.

It describes the practices required by §192.53.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the preparation, bending, joining, and installation of instrument, control and sampling line tubing & fittings containing product is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Tubing.
Tubing benders.
Tubing cutters.
Hand tools.
Other equipment & materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

The preparation, bending, joining, and installation of instrument, control and sampling line tubing and fittings shall be performed in accordance with the manufacturer's instructions.

General Tubing Bending Steps

a. Inspect the tubing for defects, remove any defects found (i.e. kinks/wrinkles, deep scratches, splits, etc.).
b. All tube bends should be made using tools designed for that purpose.
c. The bend should be made using a smooth, even bend with minimal flattening, wrinkles, or damage of the tubing.
   - Tubing benders vary by type/manufacturer – use tool in accordance with manufacturer's instructions.
d. Remove the bent tube from the tubing bender and inspect to ensure that the tubing bend is even with no flattening or other damage to the tubing.

General Tubing Installation Steps

- Inspect the tubing for defects, remove any defects found (i.e. kinks/wrinkles, deep scratches, splits, etc.).
- Where practical, blow out or flush the inside tubing and visually inspect the visible inside surface of the tubing are clean and free of debris.
- Install the appropriate fittings prior to any flaring of the tubing ends.
- Ensure that all tubing will be supported and protected as appropriate.

General Fitting Installation Steps – Flare-Type Fittings (Generally copper tubing and fittings)

a. Inspect the tubing/fitting for defects, remove any defects found (i.e. kinks/wrinkles, deep scratches, splits, etc.).

b. Ensure the tubing end to be flared is square – if not, re-cut the tubing using a tubing cutter or other acceptable cutter.
c. De-burr the tubing end's inner edge with a suitable tool to remove any burrs or other imperfections – Re-round the outside of the tubing as needed.
d. Ensure that the tubing end is square – file and polish the tubing end as needed with file and/or emery cloth.
e. Slip the flare-nut onto the tubing – female threaded end facing toward the tubing end.
f. Insert the tubing into the proper-size hole in the flaring bar. The tubing should protrude above the top of the bar of sufficient height to ensure proper flaring of the tubing – tighten the flaring bar nuts to secure the tubing in place.
g. Install the flaring yoke, if not already equipped to the flaring bar. Slowly tighten the flaring yoke clockwise – the tubing protruding above the flaring bar will begin to flare (conform) to the shape of the flaring yoke. Tighten the flaring yoke until the tubing, flaring yoke, and flaring adapter have met – DO NOT over-tighten the flaring yoke onto the flaring bar as this may cause cracking or deformation of the tubing.
h. Turn the flaring yoke counter-clockwise until the flaring yoke is completely removed from the inside of the flared tubing.
i. Inspect the flared end of the tubing for cracks, splits or other imperfections – remove any imperfections discovered and repeat the flaring process as needed.
j. Slide the flare-nut toward the end of the flared tubing and visually verify that the flared tubing end fits snugly into the flare-nut.
k. Install the flared tubing onto the flare-nut by tightening the flare-nut onto the flare fitting – care should be taken not to over-tighten the flare-nut.
l. Once completed, check fitting for leaks.

General Fitting Installation Steps –

Compression-Type Fittings

a. Inspect the tubing/fitting for defects, remove any defects found (i.e. kinks/wrinkles, deep scratches, splits, etc.).
b. Verify that all components of the fitting are present and not intermingled with parts from another fitting (i.e. fitting nuts, ferrules, etc.) – verify that any ferrules, etc. are oriented per the manufacturer's instructions.
c. Align and insert the tubing into the fitting:
    - For those fittings designed with a shoulder/stop, the tubing should be inserted until it bottoms out against the shoulder/stop.
    - For those fitting without a shoulder/stop, measure and mark the tubing to ensure proper installation.
d. Tighten nut finger tight – if resistance is felt during this process, remove the tubing from the fitting and inspect the fitting – replace if necessary.
e. Using two wrenches tighten the fitting nut(s) according to the manufacturer's instructions.
f. Inspect for proper installation.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0591 – Leak Test at Operating Pressure.

B31Q Task # 0831	**Page 1 of 1**
Revision date: 10/22/08	**Version: 2.0**
Cast-Iron Caulked & Spigot Joints-Installation & Maintenance of Mechanical Leak Clamps	**TAB# 38**

SCOPE AND PURPOSE

This procedure includes the installation and maintenance of mechanical leak clamps on caulked bell and spigot joints. It describes the practices required by §§192.753, 192.755 & 192.489.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the installation and maintenance of mechanical leak clamps is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Leak clamp(s)
Hand tools
Other equipment & materials as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

The installation and maintenance of mechanical leak clamps shall be performed in accordance with the manufacturer's instructions.

General Installation Steps

a. Clean & Inspect the Pipe Joint
   - Clean the pipe joint and bell face thoroughly – ensure the surface area is smooth and clean.
   - Inspect the area for graphitization
     - o If general graphitization is found to a degree where a fracture or any leakage may result, that segment must be replaced.
     - o If localized graphitization is found to a degree where any leakage might result, that segment must be replaced or repaired, or sealed by internal sealing methods adequate to prevent or arrest any leakage.

b. Re-Caulking and Facing-Up the Pipe Joint
   - Caulked joints should not have caulking extending beyond the bell face – Re-set any caulking and apply, as needed, additional suitable caulking material and ensure that the caulking is even with the bell face.

c. Assembly
   - Assemble the mechanical leak clamp in accordance with manufacturer's installation instructions.

d. Soap Test the Fitting

General Maintenance Steps

- If a mechanical leak clamp is found in need of maintenance or leaking:
  - o Tighten the bolts on the mechanical clamp in accordance with the manufacturer's instructions; or
  - o Apply a sealant in accordance with approved sealing systems; or
  - o Encapsulate the leak; or
  - o Replace the leaking segment

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0591 – Leak Test at Operating Pressure.

B31Q Task # 0841	**Page 1 of 1**
Revision date: 10/22/08	**Version: 2.0**
Cast-Iron Joints-Sealing: Encapsulation.	**TAB# 39**

SCOPE AND PURPOSE

This procedure includes the sealing of cast-iron joints by encapsulation and inspection of the encapsulation. It describes the practices required by §§192.753, 192.755 & 192.489.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the sealing of cast-iron joints by encapsulation is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Encapsulation bags.
Sealants.
Tools specific for encapsulation.
Hand tools.
Other equipment & materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

The encapsulation of cast-iron joints shall be performed in accordance with the manufacturer's instructions.

General Installation Steps

a. Clean & Inspect the Pipe Joint
   - Clean the pipe joint and bell face thoroughly – ensure the surface area is smooth and clean.
   - Inspect the area for graphitization
     - If general graphitization is found to a degree where a fracture or any leakage may result, that segment **must** be replaced.
     - If localized graphitization is found to a degree where any leakage might result, that segment must be replaced or repaired, or sealed by internal sealing methods adequate to prevent or arrest any leakage.

b. Assembly
   - Encapsulate the cast-iron joint in accordance with manufacturer's installation instructions.

c. Test for leaks

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0591 – Leak Test at Operating Pressure.

B31Q Task # 0851	**Page 1 of 1**
Revision date: 10/22/08	**Version: 2.0**
Internal Sealing-Cast-Iron & Ductile Iron.	**TAB# 40**

SCOPE AND PURPOSE

This procedure includes the internal sealing of cast-iron and ductile iron. It describes the practices required by §§192.489, 192.753, & 192.755.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the internal sealing of cast-iron and ductile iron is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Tools specific for internal sealing.
Hand tools.
Other equipment & materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

The internal sealing of cast-iron and ductile iron shall be performed in accordance with the manufacturer's instructions.

General Installation Steps

a. Clean the pipe and prepare the internal pipe surface

b. Perform internal sealing

c. Visually inspect and test for leaks upon completion

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0591 – Leak Test at Operating Pressure.

B31Q Task # 0861	Page 1 of 1
Revision date: 6/25/08	Version: 2.0
Installation of Steel Pipe in a Ditch.	TAB# 41

SCOPE AND PURPOSE

This procedure is to provide personnel when installing steel pipe in a ditch with safe and effective activities to ensure the integrity of the piping system. It describes practices required to comply with §192.319.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the installation of steel pipe in a ditch is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Mechanized equipment.
Routine hand tools.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. Pipes shall be adequately supported while being lowered into the ditch.
b. Trench bottom shall be relatively smooth, free of rocks, sticks, and other debris that could damage the pipe and coating.
c. When lifting, moving and lowering pipe into the ditch, be careful to protect the pipe and pipe coating from dents, gouges, nicks, scratches and other damage.
   i. When using mechanized equipment, lift the pipe using nylon sling, padded calipers, or other appropriate devices.
   ii. Pipe should not be dragged or rolled across the ground or other surfaces where rocks and other sharp objects could cause damage to the pipe coating.
   iii. Avoid impact damage to pipe, such as, dropping heavy objects on the pipe.
d. A sufficient clearance between steel piping and other underground structures not associated with the piping must be maintained. If clearance cannot be attained, the piping must be protected from damage that might result from the proximity of other structures.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0641 – Visually Inspect Pipe and Components Prior to Installation.
0981 – Backfilling.

B31Q Task # 0871-0911	**Page 1 of 2**
Revision date: 6/25/08	**Version: 2.0**
Installation of Steel or Plastic Pipe in a Bore	**TAB# 42**

SCOPE AND PURPOSE

This procedure provides personnel activities, after boring is completed, with a method of handling and pulling in of pipe. It also includes inspection of exposed pipe and coating for the purpose of ensuring the integrity of the piping system. It describes practices required to comply with 49 CFR Part 192 Subpart G and other applicable code sections.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that proper activities are performed to install pipe as described in this procedure after the boring process.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.

Ensure that all applicable safety equipment is being utilized as per company policy.

Personnel shall comply with specific requirements of authorities having jurisdiction for railroads, major thoroughfares, rivers, waterways or other boring processes.

EQUIPMENT AND MATERIALS

Boring Equipment.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

1. The trail ditch (entry and exit trench or pit) should be relatively smooth, free of rocks and other debris that could damage pipe during pull in or push through. The ditch trail shall be long enough so as not to place unnecessary strain on the pipe as it is being pushed or pulled through the bore hole.
2. Protect pipe from damage by taking practicable precautions when hauling, lifting, moving or handling.
3. When necessary, protect pipe from surface damage before it enters the entry trench by placing padding underneath it.

Installation of Plastic Pipe in a Bore

a. Inspect pipe before installing through bore hole. Repair or replace any segment of pipe that contains unacceptable surface damage or defect.
b. Pull or push pipe through bore hole taking care not to put excessive strain on the pipe.
    i. Tracer wire shall be installed along with pipe as the pipe is pulled or pushed through borehole. The tracer wire must be continuous ensuring electrical continuity for locating purposes. Do not wrap the tracer wire around the pipe.
    ii. To the extent possible, prevent dirt from entering pipe by sealing the leading end.
c. Examine pipe as it exits bore hole looking for indications of obvious damage. Repair or replace any segment of pipe that contains unacceptable surface damage or defect.

Installation of Steel Pipe in a Bore

a. Inspect pipe and coating before installing through borehole. Repair or replace any segment of pipe that contains unacceptable surface damage or defect.
b. Take precautions not to cause any damage to pipe or coating during the installation process.
c. Ensure that pressure sensitive tape wrap is installed so that the exposed edge of the wrap is facing away from the entry of the borehole.
d. Pull or push pipe through borehole taking care not to damage the pipe and coating. Use proper pipe handling devices.
   i. If casing is used during the boring process, the carrier pipe shall be properly supported within the casing.
e. Examine pipe as it exits bore hole looking for indications of obvious damage. Repair or replace any segment of pipe that contains unacceptable surface damage or defect.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0641 – Visually Inspect Pipe and Components Prior to Installation.
0941 – Install Tracer Wire.
0971 – Installation and Maintenance of Casing Spacers, Vents and Seals.

B31Q Task # 0881	**Page 1 of 2**
Revision date: 8/8/08	**Version: 1.0**
Installation of a Steel Pipe-Pull-in	**TAB# 43**

SCOPE AND PURPOSE

This procedure is to ensure the safe and proper installation of steel piping using an accepted pull-in technique. It describes practices required to comply with 192.319.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when installing steel pipe using an accepted pull-in technique, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

System maps and records.
Horizontal directional drilling (HDD) system equipment.
Other equipment and materials, as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS (Preparation)

1. Ensure that all necessary underground utility locates have been provided.
2. Perform underground utility potholing prior to commencement of the HDD procedure.
3. Ensure the location and depth of all buried utility and other underground structures within ten feet horizontally from the selected bore path.
4. Determine the soil type to be bored.
5. Select the bore path that provides the shortest reasonable distance for the steel pipe to be pulled-in.
6. Select a nearby site where the steel pipe can be constructed in one continuous length in preparation for the pull-in.
7. All welding of steel gas piping must be performed by an individual currently qualified under section 5 of API 1104 or section IX of the ASME Boiler and Pressure Vessel Code "Welding and Brazing Qualifications".
8. Select the properly sized HDD machinery for the bore distance and steel pipe diameter.
9. Ensure that the steel pipe coating and weld joint coating wraps are of sufficient thickness to minimize the potential for damage during pull-in, however, excessive coating thickness may cause undue resistance and/or snagging during pull-in.
10. The entire steel pipe segment must be leak tested prior to pull-in according to provisions under 49 CFR Subpart J – Test Requirements. The leak test must support the current gas system MAOP.
11. Ensure that both ends of the steel pipe are sealed to prevent the possibility of drilling fluid from entering the pipe.

INSTRUCTIONS (General)

1. After all pre-reams have established an adequate bore hole for the pipe, ensure that the pipe is adequately protected from damage prior to and during the pull-in process.
2. Utilize roller stands and hoisting equipment to position the pipe segment into the bore hole.
3. Nylon hoisting straps should always be used. <u>NEVER USE CHAINS FOR HOISTING</u>.

(TASK#0881-Page 2 of 2)

4. NEVER DRAG THE PIPE SEGMENT ALONG THE GROUND.
5. If a bend must be used during the pull-in process, ensure that the bend is of a sufficiently long radius in order to avoid over stressing the pipe. Kinks in the pipe are not permitted.
6. After completion of the pull-in, a final leak test should be performed on the pipe segment prior to purging and final tie in to the existing gas system.
7. Leak test final tie in joints at the normal system operating pressure using an acceptable leak test solution.
8. Utilize HDD location information to create a final set of plan and profile, (location and alignment), drawings of the pull-in.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0591 – Leak Test at Operating Pressure.
0641 – Visually Inspect Pipe and Components Prior to Installation.
0801 – Welding.
0811 – Visual Inspection of Welding and Welds.
0871 – Installation of Steel Pipe in a Bore.
1011 – External Coating Application and Repair – Wrapped.
1291 – Locate Underground Pipelines.
1321 – Damage Prevention during Excavation Activities By or On Behalf of the Operator.
1341 – Provide or Assure Adequate Pipeline Support During Operator Initiated Excavation Activities.
1641 – Purging with Gas.

B31Q Task # 0891	**Page 1 of 2**
Revision date: 10/22/08	**Version: 2.0**
Field Bending of Steel Pipe.	**TAB# 44**

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to perform field bending of steel pipe.

It describes practices required to comply with §§192.313 and 192.315.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that field bending of steel pipe is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Mechanized Equipment
Pipe benders – hand, hydraulic, or mechanical, as appropriate.
Hand Tools
Other Equipment and Materials as Needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

General

Field bending of pipe is the activity of making slight bends in the pipe to account for changes in the pipeline route and to conform to the topography. There is a variety of methods, tools and bending apparatus that can be employed. The proper selection must be made pertaining to your particular situation.

Steps

a. Field Bend other than a Wrinkle Bend
   i. Determine where the bend should be made on the pipe, then mark desired center of bend on the pipe.
   ii. Restrain pipe on both sides of the desired bend area. Bend pipe to specifications utilizing selected bending tool, apparatus, or equipment. The bending operation shall be done without appreciable flattening or buckling of the pipe.
      - When pipe is bent, the outside of the bend is stretched while the inside is compressed.
      - Minimize thinning of pipe wall by limiting the radius of the bend. The bend shall have a smooth contour and be free from buckling, cracks, or other mechanical damage.

b. Wrinkle Bend
   i. Use an oxy-acetylene welding torch to heat the pipe where the bend is to be made producing an area of relative weakness.
   ii. Bend the pipe on the heated portion to form a wrinkle in the pipe wall. If done correctly, the bent portion of the pipe will have an outwardly projecting wrinkle. Each successive bend shall be spaced at least one pipe diameter apart

(or if more stringent, as specified in company procedures) when measured along the crotch of the bend. The bend must not have any sharp kinks.

c. Inspection of Completed Field Bends
   i. Once bend is complete, inspect and examine the bend to ensure it meets the condition for its intended use. The bend must comply with company, pipe manufacturers and authorities having jurisdiction minimum specifications.
   ii. See Related Procedures for additional steps that are or may be required.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual

RELATED PROCEDURES

0151-0201-0641 Visual Inspection of: Buried Pipe and Components When Exposed, for Mechanical Damage, & Prior to Installation.

0991 Coating Application and Repair – Brushed or Rolled.

1001 Coating Application and Repair – Sprayed.

1011 External Coating Application and Repair - Wrapped.

B31Q Task # 0951	**Page 1 of 2**
Revision date: 6/25/08	**Version: 2.0**
Installation of Pipe Above Ground	**TAB# 45**

SCOPE AND PURPOSE

This procedure ensures the safe and effective handling and installing pipe above ground. It also minimizes anticipated stresses upon the pipe and protection of pipe coating.

It describes practices required to comply with 49 CFR Part 192 Subpart G and other applicable code sections.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure installation of pipe above ground is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger

Ensure that all applicable safety equipment is being utilized as per company policy

EQUIPMENT AND MATERIALS

Routine tools
Other equipment and materials as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Aboveground

- Protect pipe from damage by taking practicable precautions when hauling, lifting, moving or handling pipe. Keep out or minimize water, dirt and other foreign matter from entering the pipe.
- Visually inspect the pipe and/or coating for:
  - *Steel Pipe* – dents, gouges, flat-spots, or otherwise damaged, etc. – repair or remove damaged sections (See 49 CFR 192 Subpart G for guidance on acceptable imperfections).
  - *Plastic Pipe* – cuts, gouges, or other damage – repair or remove damaged sections (See 49 CFR 192 Subpart G for guidance on acceptable imperfections).
- All pipe installed aboveground shall be protected from accidental damage by vehicular traffic or other similar causes by either:
  - Installing barricades; or
  - Placing the pipeline at a safe distance from traffic
- Pipeline markers should be installed along the sections of pipeline installed aboveground, where applicable.

Installation of Steel Pipe Aboveground

- All joints shall be (as appropriate):
  - Welded
  - Threaded
  - Flanged
  - Otherwise joined using methods to resist pullout
- The pipe coating should extend a reasonable distance above ground level.
- Ensure that all aboveground piping is protected from atmospheric corrosion by the use of paint or other acceptable coating.
- Pipe hangers, supports and anchors should be installed:

- To provide adequate support and anchorage for the pipeline; and
- To allow the normal expansion and contraction of the pipeline.

Installation of Plastic Pipe Aboveground

- Plastic pipe must be installed in a manner that minimizes shear or tensile stresses.
- Plastic pipe may be installed aboveground by:
  - Encasing the plastic pipe in a casing pipe in a manner that will protect the pipe. The leading end of the plastic pipe must be closed before insertion into the casing pipe
    - The casing must be designed to withstand superimposed loads
    - If there is a possibility of water entering the casing, the ends should be sealed
    - If vents are installed on a casing, the vents must be protected from the weather to prevent water from entering the casing
    - The casing should terminate below ground level at both ends
    - Consideration should be given to installing casing spacers to provide adequate separation between the carrier pipe and the casing
  - Plastic pipe may be installed on bridges provided that it is:
    - Installed with protection from mechanical damage, such as in a metallic casing;
    - Protected from ultraviolet radiation; and
    - Not allowed to exceed the pipe temperature limits in §192.123
- Uncased plastic pipe may be installed temporarily aboveground if:
  - It can be demonstrated that the cumulative aboveground exposure of the pipe does not exceed that manufacturer's recommended maximum period of exposure or 2 years, whichever is less
  - The pipe either is located where damage by external forces is unlikely or is otherwise protected against such damage
  - The pipe adequately resists exposure to ultraviolet light and high and low temperatures

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0961 – Above Ground Supports and Anchors-Inspection, Preventive and Corrective Maintenance.
0971 – Installation and Maintenance of Casing Spacers, Vents and Seals.

B31Q Task # 0961	**Page 1 of 1**
Revision date: 6/25/08	**Version: 2.0**
Above Ground Supports and Anchors-Inspection, Preventive and Corrective Maintenance	**TAB# 46**

SCOPE AND PURPOSE

This procedure is to ensure that inspection and preventative and corrective maintenance are properly performed on above ground supports and anchors.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that above ground supports and anchors are inspected and maintained as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to inspect and maintain above ground supports and anchors. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Inspecting Supports and Anchors

- Visually inspect anchors and supports for signs of corrosion or poor coating condition.
- Check for indications that the pipe and/or the anchors and supports have moved or are unstable.
- Check for indications of movement or instability of the ground or structure to which the anchors and supports are attached.

Maintaining Supports and Anchors

- Repair coating as necessary, following procedure # 0991 or #1001
- If the anchors or supports are attached to ground or structures that are unstable, corrective options include:
  - shoring up the ground or structure,
  - attaching the anchors or supports to nearby ground or structures that are stable, or
  - relocating the pipe, anchors and supports.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operations and Maintenance Manual.

RELATED PROCEDURES

0991 - Coating Application and Repair - Brushed or Rolled.

1001 – Coating Application and Repair – Sprayed.

B31Q Task # 0971	**Page 1 of 2**
Revision date: 6/25/08	**Version: 2.0**
Installation and Maintenance of Casing Spacers, Vents and Seals	**TAB# 47**

SCOPE AND PURPOSE

This procedure is to ensure that casing spacers, vents and seals are installed and maintained in a safe and efficient manner so as to minimize damage to the carrier piping and associated fittings. It describes practices required to comply with §§192.323, 192.467 (a) through (d), 192.479, 192.481, and 192.707.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the installation and maintenance of casing spacers, vents and seals is performed in accordance with this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.

Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

Steel pipe and associated fittings for vents
Casing spacers and end seals
Coating system materials, as required
Proper signage, where required
Routine hand tools
Other equipment and materials, as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Installation –

1. Properly sized casing spacers should be selected in order to fit the outside diameter of the carrier pipe and the inside diameter of the casing. The inside casing surface should be relatively smooth to facilitate spacer insertion.
2. Casing spacers should be constructed of a resilient insulating material such as plastic.
3. Install insulating casing spacers close enough together to prevent any possibility of carrier / casing contact due to sagging.
4. Follow the spacer manufacturer recommendations for installing insulating spacers and tightening spacer bolts or clamps. During the insertion process, maintain the correct alignment between the carrier pipe and the casing to prevent damage to spacers or cause spacers to slide on the pipe due to friction or snagging.
5. Pulling the carrier pipe through the casing is preferable to pushing the carrier pipe through the casing. Use of an internal compression bullhead and pulling cable is preferred. Insulating spacers can be applied prior to pulling or as the carrier pipe is being pulled.
6. Soil stabilization at both ends of the casing is necessary to eliminate electrical shorting between the carrier pipe and the casing due to long term settling of the carrier pipe. The carrier pipe should be centered in the casing and self-supporting when soil stabilization is completed.
7. End seals are installed to prevent water, soil, and other debris from entering the casing/carrier facility. End seals should not be electrically conductive. Heat-shrink seals and tape seals are common and should be installed in select backfill to

(TASK#0971-Page 2 of 2)

protect them from damage. These soft seals commonly do not hold gas pressure. Ensure that properly sized end seals are installed in accordance with manufacturer's recommendations.

8. It is preferable to install weld-on vent pipes before carrier pipe insertion to prevent damage to pipe coating and end seals due to sparks and heat. Vent tops must be designed to prevent water, debris, and insects from entering or plugging the vents. Vents are not required on both ends, but they make good visual markers, good leakage survey points, and good cathodic protection test points.
9. If vents are installed, install signage as applicable by code requirements.

Maintenance -

1. Casing end seals may fail over time causing infiltration of water and other debris.
2. Replacement of end seals should be performed according to installation procedures listed in item 7. above.
3. Casing spacers made of resilient insulating material such as plastic seldom fail; therefore, periodic maintenance is not required unless severe carrier or casing pipe movement or damage has occurred.
4. After installation of casing vents, periodic inspection for atmospheric corrosion must be performed according to applicable code requirements.
5. If line markers or other signage is used, maintenance of these facilities must be performed according to applicable code requirements.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0641 – Visually Inspect Pipe and Components Prior to Installation.
0981 – Backfilling.
0991 – Coating Application and Repair – Brushed or Rolled.
1001 – Coating Application and Repair – Sprayed.
1011 – External Coating and Repair- Wrapped.

B31Q Task # 0981	Page 1 of 2
Revision date: 6/25/08	Version: 2.0
Backfilling	TAB# 48

SCOPE AND PURPOSE

This procedure is to ensure that backfill material is selected and placed in a manner that provides firm support for the pipe and that the pipe and pipe coating is not damaged during the backfill process. It describes practices required to comply with §192.319.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that backfilling a ditch is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.

Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

Mechanized equipment.
Pipe protective barrier material.
Routine tools.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

- Verify that the bottom of the excavation is free of rocks or other debris that may cause damage to the pipeline. If necessary:
  - Pad the bottom of the excavation with clean debris-free soil
  - Install "Rock-Shields" or other protective barrier around the pipeline

Backfilling

- Prior to backfilling, verify that the pipe is adequately supported so as to minimize stresses and to protect the pipe coating from damage.
- The backfilling operation should be accomplished by "layering" the soil (Adding incremental amounts of backfill material and compacting as needed).
- Using a layer of suitable backfill material (dirt, etc., that is free of rock and other debris that may damage the pipe), begin backfilling, ensuring as much backfill support as needed is placed along the sides and under the pipe to minimize shear and tensile stresses
  - The backfill should be placed in the excavation as evenly as practicable
  - Depending on conditions such as pipe size, it may be necessary to compact around the sides of the pipeline being backfilled until a suitable layer of backfill material completely covers the pipeline.
  - In the case of steel pipe, care shall be taken when compacting the backfill material to prevent damage to the pipeline or coatings.
  - In the case of plastic pipe, heavy tamping or compacting shall not be performed until the pipe has a sufficient amount of cover.
- Once a sufficient amount of clean debris-free backfill material has been placed over the pipeline and sufficiently compacted, continue with the backfilling operation:

- Backfill material above the initial layer may contain small amounts of rock or other debris.
- Tamp or compact each layer of backfill material, as needed, as it is placed into the excavation

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0861 – Installation of Steel Pipe in a Ditch.
0901 – Installation of Plastic Pipe in a Ditch.

B31Q Task # 0991	**Page 1 of 1**
Revision date: 6/25/08	**Version: 2.0**
Coating Application and Repair-Brushed or Rolled	**TAB# 49**

SCOPE AND PURPOSE

This procedure is to ensure proper surface preparation and application or repair of coatings using a brush or roller. It describes practices required to comply with §§192.461, 192.479 and 192.481.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that proper surface preparation and application of coating to pipe is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

When applicable, suitable personal protection equipment must be used commensurate with the task performed; i.e., eye protection, respiratory protection.

EQUIPMENT AND MATERIALS

Primer(s), as needed.
Paint or coating, as needed.
Routine tools.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

Because of the various types of coatings available, some general procedures for applying brushed or rolled coatings are listed below.

All pipe coatings should be applied in accordance with the manufacturer's application instructions.

- Store, handle and transport coating material(s) in such a manner as to prevent damage or contamination.
- Prepare the pipe surface by ensuring that all surface rust, dirt, oil, grease, loose coatings, or other foreign material is cleaned from the pipe surface.
    - Welded joints may need to be wire brushed with a power wire brush or other method that will remove slag or other loose particles.
- Ensure that the pipe surface is free of moisture and remains free of moisture during the coating process.
- Apply coating evenly to pipe, fittings, and components ensuring adhesion and complete coverage.
- The finished coat should not be disturbed until the coating has thoroughly dried – refer to manufacturer's specifications for drying time.
- For pipelines extending from underground to aboveground, the coating shall extend a reasonable distance above ground level.
- Inspect the final coating for verification that coating has been applied correctly.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual

RELATED PROCEDURES

0141- Visual Inspection for Atmospheric Corrosion.
0171-0191 – Measure External Corrosion/Measure Atmospheric Corrosion.

B31Q Task # 1001	**Page 1 of 1**
Revision date: 8/26/08	**Version: 2.0**
Coating Application and Repair-Sprayed.	**TAB# 50**

SCOPE AND PURPOSE

This procedure is to ensure when personnel install steel and associated fittings above ground that this material is sprayed with a protective coating so as to minimize atmospheric corrosion of the piping and associated fittings. It describes practices required to comply with §§192.479 & 481.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when installing steel pipe and associated fittings above ground, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

System maps and records.
Coating system sprayer (compressed air, airless, aerosol cans).
Rust resistant paint system, including primer if required (enamel or epoxy).
Other equipment and materials, as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. All pipe and associated fittings must be thoroughly cleaned prior to being coated.
b. All rust must be removed using hand or power brushing. Sandblasting, power sanding, and power grinding should be avoided, whenever possible.
   - Care must be taken not to remove metal.
c. All existing coating that is damaged and or disbonded must be repaired or replaced, especially at pipe-to-soil interfaces, and at pipe supports.
d. Apply primer coat, if required, evenly to the cleaned piping surface according to paint manufacturer directions. Allow primer coat to dry thoroughly.
e. Apply outer paint coat evenly to the primed piping surface according to paint manufacturer directions. Allow outer paint coat to dry thoroughly. A second outer paint coat may be applied as deemed necessary.
f. Piping spans across waterways and under bridges must also be coated.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0141 – Visual Inspection for Atmospheric Corrosion.
0191 – Measure Atmospheric Corrosion
0991 – Coating Application and Repair – Brushed or Rolled.
1011 – External Coating Application and Repair – Wrapped.

B31Q Task # 1011	**Page 1 of 1**
Revision date: 6/25/08	**Version: 2.0**
External Coating Application & Repair-Wrapped	**TAB# 51**

SCOPE AND PURPOSE

This procedure is to ensure proper surface preparation and application or repair of coatings using a wrap.
It describes practices required to comply with §§192.461, 192.479 and 192.481.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure coating application by wrapping is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

Primer(s), as needed.
Wrap.
Mastic.
Routine tools.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

Because of the various wrap-type coatings available, some general procedures for applying wrapped coatings are listed below.
All coatings should be applied in accordance with the manufacturer's instructions.

- Store, handle and transport coating material(s) in such a manner as to prevent damage or contamination.
- Prepare the pipe surface by ensuring that all surface rust, dirt, oil, grease, loose coatings, or other foreign material is cleaned from the pipe surface.
    - Welded joints may need to be wire brushed with a power wire brush or other method that will remove slag or other loose particles.
- Remove excess water or moisture from the pipe surface.
- Apply a coat of primer, if application calls for it, using accepted methods such as by brush or roller:
    - Ensure that the primer is applied evenly across the area to be wrapped
    - The primer shall be thoroughly mixed prior to application.
- Allow the primer to dry the recommended drying time (in most cases, dry to the touch).
- Apply the wrap using a slight tension in a spiral configuration with sufficient overlapping of the wrap to ensure proper coverage taking care to minimize wrinkling of the wrap.
- If wrapping a pipeline that is to be pulled through a borehole, ensure that the wrap is applied so that the exposed edge of the wrap faces opposite to the borehole.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual

RELATED PROCEDURES

0151 – Visual Inspection of Buried Pipe and Components When Exposed.

B31Q Task # 1041	**Page 1 of 2**
Revision date: 6/25/08	**Version: 2.0**
Install Mechanical Clamps and Sleeves-Bolted	**TAB# 52**

SCOPE AND PURPOSE

This procedure is to provide personnel when installing bolted mechanical clamps and sleeves with safe and effective activities to ensure the integrity of the piping system.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the installation of bolted mechanical clamps and sleeves is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Ensure that the work zone/area is setup to protect the public from danger.
Ensure that all applicable safety equipment is being utilized as per company policy.

EQUIPMENT AND MATERIALS

Bolted mechanical clamps.
Bolted mechanical sleeves.
Routine tools.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

Due to the variety of bolted mechanical clamps and sleeves available, this procedure lists general procedures for installing mechanical clamps and sleeves. All mechanical clamps and sleeves should be applied in accordance with the manufacturer's installation instructions.

Installation

- Prior to installation, verify that the proper mechanical clamp or sleeve has been selected. When selecting a mechanical clamp or sleeve, consideration should be given to the following:
  - o Pipe Size
  - o Pipe Material
  - o Operating Pressure
  - o Type of repair
    - Permanent
    - Temporary
- Visually examine the mechanical clamp or sleeve for possible defects or missing parts.
- Prepare the pipe section for installation of mechanical clamp or sleeve.
  - o The pipe section should be free of dents, gouges, excessive scrapes, or other abnormalities (pipe out-of-round, etc.) that may prevent the proper installation of the mechanical clamp or sleeve and prevent a gastight joint.
  - o For steel pipe:
    - Remove any coatings, dirt, rust or other debris for a reasonable distance on both sides where the mechanical clamp or sleeve is to be installed.
  - o For plastic pipe:
    - Thoroughly clean the pipe with a clean rag to remove any dirt, dust, or other debris.
- Install the mechanical clamp or sleeve

- Install the mechanical clamp or sleeve in accordance with the manufacturer's installation instructions.
- Leak test the mechanical clamp or sleeve to verify a gastight joint using acceptable leak-test methods such as, but not limited to:
  - Pressure tests
  - Soap tests
- If applicable, prepare and apply protective coatings as necessary.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0641 – Visually Inspect Pipe and Components Prior to Installation.

B31Q Task # 1051	**Page 1 of 1**
Revision date: 8/26/08	**Version: 2.0**
Fit-up of Weld Type Repair Sleeve	**TAB# 53**

SCOPE AND PURPOSE

This procedure is to ensure when personnel install a steel weld type repair sleeve, it is performed according to accepted industry practices. It describes practices required to comply with §192 Subpart E – Welding of Steel in Pipelines.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure when installing a steel weld type repair sleeve, that it is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

System maps and records.
Steel weld type repair sleeve (properly sized).
Routine hand tools.
Other equipment and materials, as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS (General)

a. All pipe and associated fittings must be thoroughly cleaned prior to being coated.
b. All rust must be removed using hand or power brushing. Sandblasting, power sanding, and power grinding should be avoided.
   - Care must be taken not to remove metal.
c. All existing coating material on the pipe must be removed beyond the area to be welded.
d. If severe corrosion is present, complete cylindrical pipe segment replacement should be considered.
e. Fit the weld type repair sleeve to the pipe with the longitudinal bevel surfaces in a horizontal position.
f. Ensure that the weld type repair sleeve makes complete contact with the pipe surface along each longitudinal bevel surfaces and the circumferential bevel surfaces.
g. External weld clamps may be used to ensure a tight fit to the pipe.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0151 – Visual Inspection of Buried Pipe and Components When Exposed.
0171 – Measure External Corrosion.
0641 – Visually Inspect Pipe and Components Prior to Installation.
0801-0811 – Welding and Visual Inspection of Welding and Welds.

B31Q Task # 1061	**Page 1 of 1**
Revision date: 10/22/08	**Version: 2.0**
Install Composite Sleeves	**TAB# 54**

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to ensure the integrity of the piping system when installing composite sleeves.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that installation of composite sleeves is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Composite Sleeve.
Filler Material.
Adhesive.
Hand Tools.
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

Many variations of composite sleeve wrap systems are available. Consult manufacturer's instructions for complete information on installation technique.

Steps

a. Prepare pipe for installation of composite sleeve by removing any protective wrap or coating and clean pipe to bare metal condition.
b. Apply strength filler material over the damaged area of pipeline to prevent the weakened pipe wall from further yield.
c. Mix adhesive and apply to pipe surface and to each successive wrap of the composite coil. The adhesive is spread in between each layer as the sleeve is wrapped around the pipeline. The sleeve should extend a reasonable distance beyond both sides of the defect.
d. Tighten wrap until all excess adhesive and strength filler material is squeezed out of the sleeve.
e. Allow repair to cure before backfilling and restoring pipeline environment.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

None.

B31Q Task # 1071	**Page 1 of 1**
Revision date: 10/22/08	**Version: 2.0**
Repair of Steel Pipe by Grinding.	**TAB# 55**

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to repair steel pipe by grinding. It also describes verification of minimum wall thickness requirements.

It describes practices required to comply with §192.309(a)(1) & (2).

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that repair of steel pipe by grinding is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Company Records.
Pipe Pit Depth Gauge.
Power and Hand Tools.
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

Steps

a. Determine whether the pipe can be repaired by grinding. Take an external measurement of pipe wall thickness utilizing a pipe pit depth gauge. Refer to company records for pipe size, grade, wall thickness, present and proposed MAOP.
b. Grinding may be used to repair steel pipe if the defect is a shallow crack or gouge; however, the crack or gouge shall be unacceptable when it exceeds a predetermined size as indicated in operation and maintenance manual. Removal of material by hand filing or power disk grinding constitutes a repair of a defect if after the repair, the remaining wall thickness is equal to or greater than:
   (1) The minimum thickness required by the tolerances in the specification to which the pipe was manufactured; and
   (2) The nominal wall thickness required for the design pressure of the pipeline.
   i. After the defect has been repaired, the pipe shall have a smooth curved contoured surface.
c. Determine remaining wall thickness by subtracting the repair depth from the original wall thickness.
d. Reference company procedures for acceptable limits of metal loss.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual

RELATED PROCEDURES

0171 - Measure External Corrosion
0191 - Measure Atmospheric Corrosion

B31Q Task # 1081	**Page 1 of 2**
Revision date: 8/26/08	**Version: 2.0**
Tapping a Pipeline (Tap Diameter 2 inch and Less).	**TAB# 56**

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to ensure the integrity of the piping system when tapping a pipeline (Tap Diameter 2 Inch and Less) after the fitting has been installed. It also includes installation and removal of the isolation valve.

It describes practices required to comply with §192.627.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that tapping operations are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Tapping and Completion Machine.
Machine Adapter.
Cutting Grease.
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

General

- Fitting has been installed onto pipe.

Tapping Steps

a. Attach appropriate isolation valve to fitting.
b. Fully open isolation valve.

<u>Attachment, Operation and Removal of Drilling Machine</u>

c. Attach machine adapter, boring bar, shell cutter and pilot drill onto drilling machine. The cutter and pilot bit should be thoroughly coated with cutting grease. Retract the boring bar to rearmost position.
d. Place drilling machine and machine adapter onto isolation valve and securely tighten.
e. Advance the boring bar by hand until the pilot drill contacts the pipe, then slightly retract so as to prevent starting the drilling operation in a bind.
f. Determine travel distance. Mark the point on the body of the drilling machine that the feed tube will reach when drilling is complete.
g. Operate the drilling machine advancing cutter until the pilot bit penetrates the pipe, and then continue drilling as the cutter penetrates the pipe till the cut is complete.
h. Check completion of cut by attempting to advance cutter by rotating feed crank, if the boring bar does not advance easily, the cut is not complete.
i. When the cut is complete, retract boring bar to its rearmost position ensuring cutter and pilot bit clears the valve gate. The coupon should be contained in the shell cutter.
j. Securely close the isolation valve.
k. Remove the drilling machine and machine adapter as a unit from the isolation valve.

If necessary, clear pipe shavings and debris left from tapping operation.

<u>Insertion of Completion Plug, Removal of Isolation Valve and Attachment of Completion Cap</u>

l. Attach completion machine assembled with inserting tool and completion plug to isolation valve. Open the isolation valve and advance inserting bar. Screw completion plug into fitting.
m. Remove plug inserting tool from the completion plug and withdraw shaft to rearmost position.
n. Close isolation valve.
o. Remove completion machine and adapter as a unit from the isolation valve.
p. Partially open isolation valve to ensure completion plug is properly seated, then remove isolation valve from fitting.
q. Securely tighten completion plug, then apply pipe joint compound to male threads and attach completion cap.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0801-0811 – Welding and Visual Inspection of Welds and Welding.
0981 – Backfilling.
0991 – Coating Application and Repair – Brushed or Rolled.
1011 – External Coating Application and Repair – Wrapped.
1131 – Stopper (Stopple) Pipe.

B31Q Task # 1091	**Page 1 of 2**
Revision date: 8/26/08	**Version: 2.0**
Tapping a Pipeline (Tap Diameter Greater than 2 Inch).	**TAB# 57**

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to ensure the integrity of the piping system when tapping a pipeline (tap diameter greater than 2 inch) after the fitting has been installed. It also includes installation and removal of the isolation valve.

It describes practices required to comply with §192.627.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that tapping operations are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Tapping and Completion Machine.
Machine Adapter.
Valve Adapter.
Cutting Grease.
Hand Tools.
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

General

- Fitting has been installed onto pipe.

Tapping Steps

a. Attach appropriate isolation valve to fitting.
b. Fully open isolation valve.
c. Perform "dry run" alignment of completion plug. Attach completion machine assembled with alignment tool and completion plug to the isolation valve. Advance shaft until completion plug contacts fitting threads. If necessary, slightly shift the isolation valve on the fitting and possibly the completion machine to align the completion plug threads with the fitting threads. Rotate shaft until completion plug threads are engaged with fitting threads and securely bolt isolation valve to fitting. Rotate shaft in the opposite direction until completion plug is unscrewed from fitting and withdraw shaft to rearmost position. Remove completion machine with alignment tool and completion plug from the isolation valve.

<u>Attachment, Operation and Removal of Drilling Machine</u>

d. Attach the proper size machine adapter to the body of the drilling machine, then attach the drilling machine with equipment and adapter "assembled" onto the isolation valve.
   The cutter and pilot bit should be thoroughly coated with cutting grease.
e. Raise and lower the boring bar until contact is made with the pipe. This ensures there are no obstructions. Advance boring bar until pilot drill contacts the pipe, then slightly retract.

(TASK#1091-Page 2 of 2)

f. Determine travel distance. Measure the travel required to complete the drilling operation.
g. Operate the drilling machine advancing cutter until the pilot bit penetrates the pipe. Continue drilling as cutter penetrates the pipe. The feed indicator will read the distance on the travel chart.
h. Check completion of cut by attempting to advance cutter by rotating feed crank. If the boring bar does not advance easily, the cut is not complete.
i. When the cut is complete, retract boring bar to its rearmost position ensuring cutter and pilot bit clears the valve gate. The coupon should be contained in the shell cutter.
j. Securely close the isolation valve. Be careful not to force valve closed as that may destroy the rubber seat of the valve.
k. Remove drilling machine and adapter as a unit from the isolation valve. If necessary, clear pipe shavings and debris left from tapping operation.

Insertion of Completion Plug, Removal of Isolation Valve and Attachment of Completion Cap.

l. Attach completion machine assembled with inserting tool and completion plug to the isolation valve. Open the isolation valve and advance completion machine shaft. Screw completion plug into fitting.
m. Remove plug inserting tool from the completion plug and withdraw shaft to rearmost position.
n. Bleed off pressure from the isolation valve to ensure completion plug is properly seated.
o. Remove completion machine, valve adapter and isolation valve.
p. Bolt completion flange with proper gasket solidly to fitting flange.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0801-0811 – Welding and Visual Inspection of Welds and Welding.
0981 – Backfilling.
0991 – Coating Application and Repair – Brushed or Rolled.
1011 – External Coating Application and Repair – Wrapped.
1131 – Stopper (Stopple) Pipe.

B31Q Task # 1101	**Page 1 of 1**
Revision date: 4/14/08	**Version: 2.1**
Tapping a Pipeline with a Built-In Cutter.	**TAB# 58**

SCOPE AND PURPOSE

This procedure provides personnel activities for tapping a pipeline with a built-in cutter after the fitting has been installed. It describes practices required to comply with §192.627.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that tapping a pipeline with a built-in cutter is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

- Do not perform tapping operations until ignition and potential ignition sources are eliminated.
- Whenever tapping operations are in progress, a fire extinguisher must be present at the tapping site placed at a suitable location, upwind if possible.
- Suitable personal protection equipment must be used by personnel commensurate with the tapping operation.
- Establish a safety perimeter to prevent bystanders and unauthorized personnel from entering the tapping area.
- Consult manufacturer's installation and operating instructions for complete information on the uses of different types and styles of self tapping service tees.

EQUIPMENT AND MATERIALS

Tapping tools per manufacturer's instructions
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform tapping a pipeline with a built-in cutter. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. Tap the main using appropriate tools.
   i. Rotate cutter until it contacts main.
   ii. Continue to rotate as the cutter penetrates through the pipe wall and the operator feels the seating of the tool on the pipe.
b. To admit gas through the tap, rotate tool counterclockwise until top of the tool is flush with top of tapping tee.
   i. For a steel tapping tee, apply pipe dope to threads and securely tighten cap.
   ii. For a plastic tapping tee, securely tighten cap onto threads until "O" ring makes a complete seal – do not overtighten.
   iii. Leak test using soapy water solution (soap bubbles).

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

1081 – Tapping a Pipeline (Tap Diameter 2-inch and Less).
1091 – Tapping a Pipeline (Tap Diameter greater than 2-inch).
1111 – Tapping Cast and Ductile Iron Pipe, and Low Pressure Steel Pipe.
0561 – Pressure Test-Non-liquid Medium-Test Pressure Less Than 100 psi.
0571 – Pressure Test-Non-liquid Medium-Test Pressure Greater Than or Equal to 100 psi.

B31Q Task # 1111	**Page 1 of 3**
Revision date: 10/22/08	**Version: 2.0**
Tapping Cast & Ductile Iron & Low Pressure Steel Pipe	**TAB# 59**

SCOPE AND PURPOSE

This procedure includes tapping a pipe with or without an installed fitting, and also includes installation of threaded fittings after the tap.

It describes practices required to comply with §192.627.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that tapping operations are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Tapping and Completion Machine.
Machine Accessories, Adapters, Gaskets, etc.
Cutting Grease.
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

Tapping Steps – Fitting Installed on the pipe

a. Attach appropriate isolation valve to fitting.
b. Fully open isolation valve.

Attachment, Operation and Removal of Drilling Machine

c. Attach machine adapter, boring bar, and boring bit onto drilling machine. The boring should be thoroughly coated with cutting grease. Retract the boring bar to rearmost position.
d. Place drilling machine and machine adapter onto isolation valve and securely tighten.
e. Advance the boring bar by hand until the pilot drill contacts the pipe, and then slightly retract so as to prevent starting the drilling operation in a bind.
f. Determine travel distance. Mark the point on the body of the drilling machine that the feed tube will reach when drilling is complete.
g. Operate the drilling machine advancing cutter until the pilot bit penetrates the pipe, and then continue drilling as the cutter penetrates the pipe till the cut is complete.
h. Check completion of cut by attempting to advance cutter by rotating feed crank, if the boring bar does not advance easily, the cut is not complete.
i. When the cut is complete, retract boring bar to its rearmost position ensuring cutter and pilot bit clears the valve gate. The coupon should be contained in the shell cutter.
j. Securely close the isolation valve.
k. Remove the drilling machine and machine adapter as a unit from the isolation valve. If necessary, clear pipe shavings and debris left from tapping operation.

Insertion of Completion Plug, Removal of Isolation Valve and Attachment of Completion Cap.

(TASK#1111-Page 2 of 3)

l. Attach completion machine assembled with inserting tool and completion plug to isolation valve. Open the isolation valve and advance inserting bar. Screw completion plug into fitting.
m. Remove plug inserting tool from the completion plug and withdraw shaft to rearmost position.
n. Close isolation valve.
o. Remove completion machine and adapter as a unit from the isolation valve.
p. Partially open isolation valve to ensure completion plug is properly seated, then remove isolation valve from fitting.
q. Securely tighten completion plug, then apply pipe joint compound to male threads and attach completion cap.

Tapping Steps – Fitting NOT Installed on the pipe

a. Select and assemble the required equipment to perform the tap – ensure isolation valve is fully opened.
b. Thoroughly clean the pipe in the area of the tap.
c. Attach the tapping machine to the pipe.
d. Tap the main by rotating the boring bar clockwise and rotating the feed-nut and yoke clockwise to keep a "light" pressure on the boring bit.
e. Continue tapping the main until the boring bar feeds and rotates easily – the drill portion of the tool is through the pipe.
f. Rotate the ratchet handle clockwise and rotate the feed-nut clockwise to engage the thread-tapping part of the tool into the newly tapped hole.
g. Continue to rotate the feed-nut until the tapping threads of the tool is securely started into the main – DO NOT overfeed faster than the tapping threads can tap the main as this may strip the threads being tapped in the main.
h. Once the hole has been fully tapped, reverse the ratchet handle to allow for counter-clockwise rotation.
i. Rotate the ratchet handle counter-clockwise and carefully back-out the tapping/boring bit – Use caution when backing out the tapping/boring bit as the machine may now be under pressure.
j. Withdraw the boring bar to the uppermost position and close the isolation valve.
k. Release the pressure within the machine by operating the by-pass on the isolation valve to relieve the pressure on the top of the isolation valve.
l. Remove the tapping/boring machine from the isolation valve/main.
m. Attach plug, stop, or tee to boring bar – ***ensure that the stop or tee is fully closed***.
n. Install machine back onto the isolation valve/main.
o. Operate the by-pass on the isolation valve to allow the pressure to equalize across both sides of the isolation valve.
p. Open the isolation valve.
q. Insert the plug, stop, or tee into the main by pushing the boring bar down until the threads of the fitting contact the pipe.
r. Adjust the feed-nut and yoke over the boring bar – DO NOT over-tighten as this may cause the fitting to cross-thread.
s. Rotate the boring bar, feed-nut and yoke clockwise until the fitting has started into the internal threads of the main.
t. Continue to tighten the fitting into the main until the fitting is secure – DO NOT attempt to force or over-tighten the fitting.
u. Operate the by-pass on the isolation valve to relieve the pressure contained within the machine and valve.
v. Remove the machine, isolation valve and other associated equipment.
w. Tighten the plug, stop or tee to final tightness using the appropriate wrench.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

None.

B31Q Task # 1131	**Page 1 of 2**
Revision date: 8/26/08	**Version: 2.0**
Stopper (Stopple) Pipe	**TAB# 60**

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to ensure the integrity of the piping system for pipeline stopping. It includes the insertion and removal of a stopper (stopple).

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that stopper (stopple) pipe is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Stopping Machine with Attachments.
Rubber Lubricant.
Hand Tools.
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

General

Fitting has been installed onto pipe and isolation valve attached to fitting.

Stopping Steps

a. Advance the inserting bar of stopping machine until fully extended. Attach stopper to the inserting bar and apply rubber lubricant. Withdraw inserting bar to the rearmost position.
b. Securely tighten stopping machine onto isolation valve.
c. If appropriate, equalize pressure across the isolation valve.
d. Fully open isolation valve.
e. Stopple pipe by advancing inserting bar with attached stopper into fitting. Continue to advance until stopper contacts bottom of fitting. Set stopper to stop off line.

   * Whenever two stopping machines are being utilized for the installation of a by-pass line to maintain service around a section of pipe to be isolated on a single-fed line, pay close attention to the manufacturer's instructions for sequencing.

f. Verify pressure and monitor during performance of work.
g. Relieve pressure: At this point, stopper tightness can be determined.

   * When using one stopping machine, once the stopper has been set, pressure can be relieved through the blow down connection.

   * When using two stopping machines, once the stoppers have been set, relieve pressure between the stopped off section of pipe.

h. Once performance of desired work has been completed, retract stopper(s) from fitting.
i. Close the isolation valve.

j. Remove stopping machine from the isolation valve.
k. **For Insertion of Completion Plug, Removal of Isolation Valve and Attachment of Completion Cap/Flange,** refer to Related Procedures #1081 or #1091.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

1081 – Tapping a Pipeline (Tap Diameter 2 Inch and Less)
1091 – Tapping a Pipeline (Tap Diameter greater than 2 inch)

B31Q Task # 1151	Page 1 of 1
Revision date: 8/26/08	Version: 2.0
Squeeze Off Steel Pipe	TAB# 61

SCOPE AND PURPOSE

This procedure is to provide personnel with safe and effective activities to ensure the integrity of the piping system when performing squeeze off of steel pipe.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that squeeze off operations are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Squeeze Tool.
Company Maps and Records.
Hand Tools.
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Maintenance and Operation of Equipment

All equipment shall be operated and maintained in accordance with the manufacturers' instructions.

Squeeze Off Steps

a. Verify the correct pipeline segment and proper location for the squeeze off. Determine whether the line has one-way or two-way feed. If possible, the squeeze tool should be located a reasonable distance away from fittings.
b. Use squeeze tool to shut off gas flow to pipeline segment.
   i. Select the proper size squeeze tool for the pipe to be squeezed. The correct squeeze bars for the various size pipe must be used.
   ii. Position squeeze tool onto pipe. The squeeze tool should be upright, centered and square on the pipe. If possible, the longitudinal seam of the pipe should be facing directly under the upper jaw or directly above the lower jaw of the squeeze tool.
   iii. Compress pipe by operating the closing mechanism. Flatten the pipe between the upper and lower jaws shutting off gas flow.
      o If available, engage the accidental release prevention mechanism. Some squeeze tools require installation of saddle clamps; others automatically lock.
c. Close valve in the system nearest squeeze point or attach and close isolation valve.
d. Verify system pressure and monitor during performance of work.
e. Release closing mechanism and remove squeeze tool from pipe.
   i. If available, disengage the accidental release prevention mechanism or remove clamps.
f. Perform necessary work.
g. Once the project is complete, open valve allowing pressure to equalize in the system and purge air from line.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

1141 – Squeeze off Plastic Pipe.

B31Q Task # 1231	**Page 1 of 3**
Revision date: 4/14/08	**Version: 2.1**
Leak Investigation-Inside Gas Leak Investigation.	**TAB# 62**

SCOPE AND PURPOSE

This procedure is to provide personnel performing inside leak investigations with the necessary procedures for prompt and effective response and to protect life and property as required by §192.615.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that inside leak investigations are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

- The first person to respond to a report of gas detected inside a building shall take every necessary action to ***protect life and property.***
- No open flames.
- No smoking
- Ensure that cell phones, pagers, and radios are either intrinsically safe or left outside.
- Turn on all necessary equipment before entering premise (Flashlights, Combustible Gas Indicators (CGI), etc.) – "Zero" CGI in clean air before taking readings.
- ***Knock*** on the door – ***DO NOT*** ring the doorbell.
- DO NOT use the telephone in the area of a suspected gas leak.
- Establish a safety perimeter to prevent bystanders and unauthorized personnel from entering the area.
- Use the required safety equipment.

EQUIPMENT AND MATERIALS

Gas Detector Equipment.
Combustible Gas Indicator (CGI).
Communication method (Radio, Cell Phone, etc.).
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform inside leak investigations. Refer to the OQ Plan for specific qualification requirements.

MAINTENANCE & OPERATION OF INSTRUMENTS

Each instrument used for leak detection and evaluation shall be operated in accordance with the manufacturer's recommended operating instructions.

CALIBRATION OF INSTRUMENTS

Each instrument used for leak detection and evaluation shall be calibrated at the following times in accordance with the manufacturer's recommend calibration instructions.

INSTRUCTIONS

1. ***Customer Not at Home***
   a. *Attempt to determine the condition inside the building.*
      i. While approaching the building, observe the area for obvious signs of a gas leak in the area (use sight, smell, and hearing), including, but not limited to:
         - Dead or dying grass, shrubs, or trees
         - Absence of growth in paving cracks
         - Cracked or crusted soil, or mildewed soil
         - Absence of grass overhang on curbing or walkways
         - Odor of gas or sound of escaping gas

- ***ii.*** Using an instrument capable of alerting the user to the presence of a gas leak, check around the entrance door and any other available openings such as, but not limited to, crawl space vents, windows, etc. for an indication of a gas leak.
- ***iii.*** Probe around the outside perimeter of the building next to the building foundation and obtain CGI readings checking for the presence of gas in the ground outside the building.
  - If the presence of gas is detected in the ground and there is no indication of gas inside the building, see ***B31Q Task # 1241 – Outside Leak Investigation.***

b. *<u>If there is an indication of gas inside the building:</u>*

- ***i.*** Shut off the gas to the building, if one exists.
- ***ii.*** If, in the judgment of the personnel at the scene, the indication of gas presents a hazard to life or property, immediately notify:
  - System Management
  - Fire Department
  - Police Department
- ***iii.*** Establish a safety perimeter and prevent unauthorized personnel from entering the building – DO NOT allow entry into the building until it has been checked and deemed safe for entry.
- ***iv.*** Conduct a check of adjacent structures for the presence of a gas leak.
- ***v.*** If necessary, implement Emergency Plan.

2. ***<u>Customer at Home</u>***

a. *<u>Assess the condition inside the building.</u>*

- ***i.*** While approaching the building, observe the area for obvious signs of a gas leak in the area (use sight, smell, and hearing).
- ***ii.*** Ensure that all equipment is turned on prior to entering the building (Flashlight, CGI, Gas Detector, etc.) and ensure that all cell phones, pagers, and radios are intrinsically safe or left outside.
- ***iii.*** Using an instrument capable of alerting the user to the presence of a gas leak, check around the entrance door for the presence of a gas leak.
- ***iv.*** Question occupants regarding the location of the gas odor.
- ***v.*** As you enter the premise, sample the air in rooms, concentrating on the location(s) where the occupants believe they detected the odor, if given, for the presence of a gas leak.
- ***vi.*** Sample air in basements or crawl space for the presence of a gas leak.

b. *<u>If there is an indication of gas inside the building:</u>*

- ***i.*** Obtain a reading with a CGI. If the reading indicates the presence of a dangerous concentration of gas (20% of the Lower Explosive Limit (L.E.L.) or 1% on the percent gas (%) scale, or greater, or in the judgment of the personnel at the scene the indication of gas presents a hazard to life or property:
  - Evacuate the building immediately;
  - <u>DO NOT</u> operate/use any electrical switches;
  - Leave the door open as you exit;
  - Shut off and lock gas meter, if one exists;
  - Notify immediate Supervisor
  - Establish a safety perimeter and prevent unauthorized personnel from entering the building – DO NOT allow entry into the building until it has been checked and deemed safe for entry.

- Probe around the outside perimeter of the building next to the building foundation and obtain CGI readings checking for the presence of gas in the ground outside the building.
  - o Check water meter boxes and other available openings. Check other structures in close proximity.
  - o If the presence of gas is detected in the ground, see ***B31Q Task # 1241 – Outside Leak Investigation***.

ii. If necessary, implement Emergency Plan.

iii. Once the building is safe for re-entry:

- Search for and locate leak.
- Repair leak or inform the customer to correct the situation – if the repair is the customer's responsibility, ensure meter is off and locked – advice the customer to call back to have the gas turned back on once the repair is made.

c. *If there is an indication of gas inside the building and it DOES NOT present a hazard to life or property (see 2.b.i. above), and a shut-off valve is located before the leak:*

i. Shut off the valve at the appliance/leak to isolate the leak and tag the appliance; or,

ii. Repair leak; or

iii. Turn off service valve at the meter, install lock in the service valve, and advise the customer to repair.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operations and Maintenance Manual.

RELATED PROCEDURES

1241 – Outside Gas Leak Investigation.
1261 – Walking Gas Leakage Survey.

B31Q Task # 1241	**Page 1 of 3**
Revision date: 4/14/08	**Version: 2.1**
Outside Gas Leak Investigation.	**TAB# 63**

SCOPE AND PURPOSE

This procedure is to provide personnel performing outside leak investigations with the necessary procedures for prompt and effective response and to protect life and property as required by §192.615.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that outside leak investigations are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

- The first person to respond to a report of gas odor shall take every necessary action to ***protect life and property.***
- No open flames.
- No smoking.
- Establish a safety perimeter to prevent unauthorized personnel from entering the area.
- Use the required safety equipment.

EQUIPMENT AND MATERIALS

Gas Detector Equipment.
Combustible Gas Indicator (CGI)
Probe Rod.
Maps & Other Records (If Available).
Communication method (Radio, Cell Phone, etc.).
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform outside leak investigations. Refer to the OQ Plan for specific qualification requirements.

MAINTENANCE & OPERATION OF INSTRUMENTS

Each instrument used for leak detection and evaluation shall be operated in accordance with the manufacturer's recommended operating instructions.

CALIBRATION OF INSTRUMENTS

Each instrument used for leak detection and evaluation shall be calibrated at the following times in accordance with the manufacturer's recommended calibration instructions.

ADDITIONAL GUIDANCE & ACTION CRITERIA

When performing outside leak investigations, or when evaluating any gas leak indication, the initial step is to determine if a leak is present, and then establish the grade/severity and perimeter of the leak area considering the following:

- If possible, locate all gas lines in the vicinity of the leak investigation. Particular attention should be paid to the location of valves, fittings, tees, stubs, and connections.
- If possible, all foreign facilities in the area of the search should be identified.
- Personnel should look for evidence of recent construction activities that may have contributed to the leakage.
- Gas may also migrate and vent along a trench or bore-hole provided for other facilities. Leaks could occur at the intersection of the foreign facility and the gas pipeline; particular attention should be given to those intersections.
- If possible, CGI readings should be taken in, or adjacent to, water, sewer, storm water, electric, and telephone structures such as water meter boxes, manholes, catch basins, sewer clean-outs, and junction boxes in the area of the suspected leak, if applicable.

- Evenly spaced bar or test holes should be used over the gas line(s) suspected to be leaking.
- If possible, all bar or test holes should be of equal depth and diameter (and down to the pipe where necessary).
- If possible, all CGI readings should be taken at an equal depth and the readings recorded.

1. Before a leak can be classified, a determination shall be made as to the severity of the leak.
   - The migration of gas shall be determined by establishing the outer boundaries of the indications. These tests shall be made with a CGI.
2. Based on the evaluation of the location or magnitude of a leak, or both, leaks shall then be graded in accordance with the Pacific Energy & Mining Company's leak classification criteria. The judgment of the personnel at the scene is of the primary importance in determining the grade assigned to the leak.
   - **Note: Underground leaks must be graded using a Combustible Gas Indicator (CGI). A CGI is a device capable of detecting and measuring gas concentrations, of the gas being transported, in the atmosphere.**
3. All leaks shall be repaired / monitored according to the Pacific Energy & Mining Company's leak classification and action criteria.
4. When a leak is to be re-evaluated, it shall be re-evaluated and classified using the same procedure that was used in the initial classification of the leak.

INSTRUCTIONS

a. While approaching the area of a suspected outside gas leak, observe the area for obvious signs of a gas leak in the area (use sight, smell, and hearing), including, but not limited to:
   - Dead or dying grass, shrubs, or trees
   - Absence of growth in paving cracks
   - Cracked or crusted soil, or mildewed soil
   - Absence of grass overhang on curbing or walkways
   - Odor of gas or sound of escaping gas

b. Interview the individual(s) that reported the odor, if they are available. Begin the leak investigation in the area where the individual(s) reported the leak, if given.

c. Check any aboveground facilities for leaks, such as, but not limited to, meter sets and regulator stations.

d. Check around the perimeter of any structure in which gas could likely migrate along the edge of the foundation for the presence of a gas leak, if applicable.

e. Perform underground leak investigations of any underground mains and services in the area.

f. If using an instrument capable of alerting the user of the presence of a gas leak and this instrument indicates the presence of a gas leak, verify that gas is not migrating close to any buildings or other structures where gas could likely accumulate.

g. Begin probing ("bar-holing") around the perimeter of any structure in which the gas could likely migrate along the edge of the foundation and obtain readings using a CGI (Refer to your company's leak grading standards for the grading of leaks).
   - **Note: Only those instruments designed to register the % of gas-in-air may be used for grading leaks. Instruments that give audible or visual alarms for gas leaks but do not provide % of gas-in-air may not be used for grading leaks.**

h. If a check of the outside of a building or other structure indicates the presence of gas near or under a building or other structure or along the edge of the foundation:

i. Notify in accordance with Operations and Maintenance Manual or Emergency Plan; and
ii. Begin taking action as described in **B31Q Task # 1231 – Inside Leak Investigation.**
iii. If possible, expose the area around the service riser, open water meter boxes and other available openings to allow the gas to escape to the atmosphere. Care must be taken to make these openings safe for the public and to AVOID IGNITION.

i. Consideration should also be given to probing ("bar-holing") along nearby neighboring structures especially if the leak investigation is revealing no presence of a gas leak at the present location.

Precautions

- When placing bar or test holes for testing, consideration shall be given to bar or test-hole placement and depth to minimize the potential for damage to gas pipeline facilities and possible injury to personnel conducting the investigation.
- Caution should also be exercised to prevent damage to other underground structures when barholing or excavating.
- Unusual situations may complicate investigation techniques on some occasions such as, but not limited to:
  - Multiple leaks
  - Foreign gases
  - Gas detected in storm-drain or sewer systems
  - Gas detected in telephone or other duct runs
    - These indications should be considered migrating gas leakage until proven otherwise by test or analysis.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operations and Maintenance Manual.

RELATED PROCEDURES

1231 – Inside Gas Leak Investigation.
1261 – Walking Gas Leakage Survey.

B31Q Task # 1261	**Page 1 of 3**
Revision date: 4/14/08	**Version: 2.1**
Walking Gas Leakage Survey.	**TAB# 64**

SCOPE AND PURPOSE

This procedure is to provide personnel performing leakage surveys with the necessary procedures to inspect any portion of a natural gas system to detect, classify, and report leakage locations that are venting to the atmosphere as required by §192.706 & §192.723.

A leakage survey shall provide coverage of mains and services underground and aboveground; in all areas where an operator can reasonably be expected to carry the equipment.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that leakage surveys are properly performed.

PERSONNEL SAFETY (Where Applicable)

Do not survey if lightning is present.
Leakage surveys may be conducted by using either a single- or multiple-person survey party.

EQUIPMENT AND MATERIALS

Gas Detector.
Probe Rod.
Combustible Gas Indicator (CGI).
Maps & Other Records (If Available).
Communication method (Radio, Cell Phone, etc.).
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform surface leakage surveys utilizing the walking method. Refer to the OQ Plan for specific qualification requirements.

MAINTENANCE & OPERATION OF INSTRUMENTS

Each Instrument used for leak detection and evaluation shall be operated in accordance with the manufacturer's recommended operating instructions.

CALIBRATION OF INSTRUMENTS

Each instrument used for leak detection and evaluation shall be calibrated at the following times in accordance with the manufacturer's recommended calibration instructions.

INSTRUCTIONS

The survey shall be conducted at speeds slow enough to allow an adequate sample to be continuously obtained by placement of equipment intakes over the most logical venting locations (See 1, 2, 3 below), giving consideration to the location of gas facilities.

1. *For Aboveground Piping:*
   - Sampling of the atmosphere should, where practical, take place adjacent to the piping as close as permitted by gas detector design, due to the potential for rapid diffusion of leaking gas to the atmosphere.
2. *For Underground Piping:*
   - Sampling of the atmosphere should, where practical, take place along the route of the pipeline to be inspected as close to the ground surface as permitted by gas detector design, due to the potential for rapid diffusion of leaking gas to the atmosphere.
3. *Areas Where Piping is Under Pavement*
   - Samplings should be taken at, but not limited to, the following locations:
     - Curb Line(s)
     - Available ground surface openings, such as but not limited to:

- Manholes
- Catch Basins
- Sewer, Power, & Telephone Duct Openings
- Fire & Traffic Signal Boxes
- Cracks in Pavement of Sidewalks
- Any Point where Venting is Likely to Occur
- Foundation Walls

4. *Limitations*
   - Gas detector design or adverse conditions may **limit** the use of this survey method. Examples of adverse conditions that may affect the venting of subsurface gas leaks include, but are not limited to:
     - Moisture
     - Frost
     - Ice & Snow Cover
     - High or Gusting Wind

Leak Classification, & Action Criteria

When evaluating any gas leak indication, the initial step is to determine the grade/severity and perimeter of the leak area and take appropriate action in accordance with Operations and Maintenance Manual or Emergency Plan. If this perimeter extends to a building wall, the investigation(s) should continue into the building, if possible.

1. Before a leak can be classified, a determination shall be made as to the severity of the leak.
   - The migration of gas shall be determined by establishing the outer boundaries of the indications. These tests shall be made with a CGI.
   - If possible, locate all gas lines in the vicinity of the leak indication. Particular attention should be paid to the location of valves, fittings, tees, stubs, and connections.
   - If possible, all foreign facilities in the area of the search should be identified.
   - Personnel should look for evidence of recent construction activities that may have contributed to the leakage.
   - Gas may also migrate and vent along a trench or bore-hole provided for other facilities. Leaks could occur at the intersection of the foreign facility and the gas pipeline; particular attention should be given to those intersections.
   - Evenly spaced bar or test holes should be used over the gas line(s) suspected to be leaking.
   - If possible, all bar or test holes should be of equal depth and diameter (and down to the pipe where necessary).
   - All CGI readings should be taken at an equal depth and the readings recorded.
2. Based on the evaluation of the location or magnitude of a leak, or both, leaks shall then be graded in accordance with the Pacific Energy & Mining Company's leak classification criteria. The judgment of the personnel at the scene is of the primary importance in determining the grade assigned to the leak.
   - **Note: Underground leaks must be graded using a Combustible Gas Indicator (CGI). A CGI is a device capable of detecting and measuring gas concentrations, of the gas being transported, in the atmosphere.**
3. All leaks shall be repaired / monitored according to the Pacific Energy & Mining Company's leak classification and action criteria.
4. When a leak is to be re-evaluated, it shall be re-evaluated and classified using the same procedure that was used in the initial classification of the leak.

Precautions

- When placing bar or test holes for testing, consideration shall be given to bar or test-hole placement and depth to minimize the potential for damage to gas pipeline facilities and possible injury to personnel conducting the investigation.

- Caution should also be exercised to prevent damage to other underground structures when barholing or excavating.
- Unusual situations may complicate investigation techniques on some occasions such as, but not limited to:
  - Multiple leaks
  - Foreign gases
  - Gas detected in storm-drain or sewer systems
  - Gas detected in telephone or other duct runs
    - These indications should be considered migrating gas leakage until proven otherwise by test or analysis.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operations and Maintenance Manual.

RELATED PROCEDURES

1231 – Inside Gas Leak Investigation.
1241 – Outside Gas Leak Investigation.

B31Q Task # 1291	**Page 1 of 2**
Revision date: 8/24/12	**Version: 2.3**
Locate Underground Pipelines.	**TAB# 65**

SCOPE AND PURPOSE

This procedure is to ensure that the location of this Operator's buried gas pipelines in the vicinity of proposed excavation activity is marked in accordance with 49 CFR 192.614(c)(5).

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that underground pipelines are located as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Wear a reflective safety vest and use care when locating lines under or near roadways and in other areas where moving vehicles are present. When arriving at the location look for obstacles, surface conditions and other features that may pose a safety hazard.

EQUIPMENT AND MATERIALS

System maps and records.
Line locating instrument.
Yellow paint, flags and/or other marking types.
Other equipment and materials as needed.
Manufacturer's instructions.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

(TASK#1291-Page 2 of 2)

INSTRUCTIONS

a. Check the batteries in both the transmitter and the receiver. If the batteries are low, replace them with new ones or recharge them according to the manufacturer's recommendations
b. Go to the location indicated on the locate ticket.
c. Consult the maps and/or records to verify the approximate location of the buried piping.
d. (Conductive method) Attach the pipe lead to the pipe, test station, tracer wire, or any appurtenance that is in good electrical contact with the structure to be located. Make sure that there is no rust or paint to interfere with the connection.
   (Inductive method) If there is no place to hook directly to the tracer wire, place the transmitter as nearly as possible directly over the tracer wire or pipeline. Follow the instructions for the locating instrument to prevent being too close to the transmitter with the receiver (typically 30 - 75 feet from the transmitter).
e. Attach the ground wire to a suitable ground or ground stake located in the vicinity of the structure to be located. Turn the transmitter on and make any adjustments necessary to ensure proper operation. Use the lowest frequency possible at the lowest power output possible to minimize the "bleed over" of the signal to adjacent facilities. Note that not all locating devices have a frequency adjustment.
f. Turn the receiver on and adjust the sensitivity setting on the receiver to a workable level.
g. Follow the instructions for the line locating instrument to locate the buried piping.
h. Mark the location of the gas lines. Markings may include one or any combination of the following: paint, chalk, flags, stakes, brushes or offsets.

Note: The Georgia Underground Marking Standards found in Appendix S-2 of the SRCS Operations & Maintenance Manual govern this Procedure.
(i) Indicate gas lines by placing their UPC alpha code, along with the type material (if known) that the facility consists of, at the beginning and end of locates. Also, arrows should be placed at the ends of markings to indicate that the underground facility continues.
(ii) To avoid confusion on long runs, the marks shall be frequent enough to identify the owner.
(iii) The marks shall indicate the approximate center-line of the gas lines. For example, the middle of the pipe shall be at the center of the dashed marks.
(iv) Location marks shall be 4 to 12 inches in length and at intervals of 5 to 10 feet.
(v) Extend marks outside the proposed work area by 20 to 30 feet if those facilities extend outside the proposed excavation area.
(vi) In areas such as flower beds, rock gardens, etc., flags or stakes may be an alternative to paint. The decision to use flags, paint, or stakes shall be based on the terrain and job conditions. For instance, flags or stakes in wet areas, offsets in dirt construction zones that have a high volume of traffic crossing their line location marks.
(vii) Dead ends, stub-outs, termination points, etc., shall be marked as follows:

← ABC---] [---XYZ→

(viii) Lines that have connections (e.g., T's) or changes in directions shall be clearly indicated. Marks indicating lines or connections shall clearly show the intersection and path of the line or connection. Marks that show changes in direction shall be placed closer together for more clarity and accuracy.
(ix) Valves shall be identified by using a circle and letters if they are not visible (dirt or pavement covering valve boxes).
(x) Facilities that cross but do not intersect shall be marked as described in the GPSC Marking Standards to indicate such installation manner.
(xi) When facilities share the same trench, they shall be heavily identified and separated enough so that they can be readily identified.
(xii) If the facility to be marked has a diameter greater than 12", the size of the facility shall be indicated if known. If the size is not known, then the mark shall indicate greater than 12 inches.
(xiii) In areas where there is a strong likelihood that any or all marker types showing line location would be destroyed, offsets shall be placed on a permanent surface. However, offsets should be used only in conjunction with marks placed above a facility. Offset spacing should be every third or fourth mark.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

None.

B31Q Task # 1301	**Page 1 of 1**
Revision date: 4/14/08	**Version: 2.1**
Install and Maintain Pipeline Markers.	**TAB# 66**

SCOPE AND PURPOSE

This procedure is to provide personnel installing and maintaining pipeline markers with a safe and effective procedures to ensure the integrity of the piping system. It describes practices required to comply with §192.707.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the installation and maintenance of pipeline markers are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

- Use the required safety equipment.

EQUIPMENT AND MATERIALS

Marker driver and cap.
Posthole diggers.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to install and maintain pipeline markers. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. Identify all locations of buried and above ground facilities that require installation of pipeline markers. Pipeline markers are not required on mains in Class 3 or 4 Locations where a damage prevention program is in effect. A line marker must be placed as close as practical over each buried main and transmission line including each crossing of a public road and railroad and wherever necessary to identify the location of the pipeline to reduce the possibility of damage or interference.
b. Markers should be installed at a frequency on the right of way where there is no place a marker cannot be seen, if possible.
c. Pipeline markers must be placed along each section of a main or facility that is located above ground including but not limited to:
   - Town border stations
   - District regulator stations
   - Relief valve vent stacks
   - Valve settings
   - Bridge crossings
   - Odorizer settings
   - Telemeter settings
d. All signs must have the information needed to identify the product in the line including company name and phone numbers where responsible parties can be reached at all times.
e. Ensure that installed markers are in good condition and the markings are legible and the information is correct.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual

B31Q Task # 1311	**Page 1 of 3**
Revision date: 8/26/08	**Version: 2.0**
Inspect Pipeline Surface Conditions-Patrol Right-of-Way or Easement.	**TAB# 67**

SCOPE AND PURPOSE

This procedure includes performing right-of-way or easement patrol (e.g. walking or driving) to visually identify signs of leaks, encroachments, conditions of the right-of-way, or any other signs of potential impact to pipeline safety or integrity. It describes the practices required by §§192.705 & 192.721.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that the patrolling of pipelines are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

EQUIPMENT AND MATERIALS

Maps/Records, if available.
Method(s) of communication, if available.
Other equipment and materials as needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

General

- At a minimum, the frequency of patrols for transmission lines and distribution lines may not be less than the prescribed intervals found in §§192.705 and 192.721 respectively – these frequencies should also be stated in the Operations and Maintenance Manual.

Patrolling – Transmission Lines

- Transmission lines should be patrolled, either by walking or driving along pipeline rights-of-ways and easements, to observe factors that may affect safe operation and to enable the correction of potentially hazardous conditions.
- Patrol considerations should include observation and reporting of potential hazards such as, but not limited to
  - Visual evidence of leakage
  - Excavation, grading, demolition, or other construction activity which could result in
    - Damage to the pipe
    - Loss of support due to settlement or shifting of soil around the pipe
    - Undermining or damage to pipe supports
    - Loss of cover
    - Excessive fill
  - Evidence that excavation, grading, demolition or other construction activity may take place or has taken place, such as power equipment staged in the vicinity of transmission facilities or a freshly backfilled excavation over or near transmission facilities.
  - Physical deterioration of exposed piping, pipeline spans, and pipe supports such as bridges, pilings, headwalls, casing, and foundations.
  - Land subsidence, earth slippage, soil erosion, extensive tree root growth, flooding, and other natural causes that can result impressed secondary loading.
  - The need for additional pipeline identification markers in private right-of-ways and in rural areas.
  - Damage to casing vents and leakage from encased pipe.

- Locations or areas that are found to be potentially hazardous during patrolling may be patrolled more frequently based on the probable severity, timing, and duration of the hazard.
- Where practical, the patrol map or other documentation used by personnel performing the patrol should identify areas near the transmission line that may require special attention such as locations where earthmoving activities are regularly performed
  - In those areas where excavation activities are performed on a regular basis, consideration should also be given to providing those excavators with more frequent damage prevention and public awareness education materials
- Patrol reports should
  - Indicate the nature and location of any deficiencies discovered
  - Indicate any hazardous or potentially hazardous condition found
  - Document any corrective action taken
  - If corrective action has not been taken, note any recommended action items
- If available, compare the current patrol conditions against conditions observed during previous patrols.

Patrolling – Distribution Lines

- Distribution lines should be patrolled, either by walking or driving along pipeline rights-of-ways and easements, to observe factors that may affect safe operation and to enable the correction of potentially hazardous conditions.
- Patrol considerations should include observation and reporting of potential hazards such as, but not limited to
  - Visual evidence of leakage
  - Excavation, grading, demolition, or other construction activity which could result in:
    - Damage to the pipe
    - Loss of support due to settlement or shifting of soil around the pipe
    - Undermining or damage to pipe supports
    - Loss of cover
    - Excessive fill
  - Evidence that excavation, grading, demolition or other construction activity may take place or has taken place, such as power equipment staged in the vicinity of distribution facilities or a freshly backfilled excavation over or near distribution facilities.
  - Physical deterioration of exposed piping, pipeline spans, and pipe supports such as bridges, pilings, headwalls, casing, and foundations.
  - Land subsidence, earth slippage, soil erosion, extensive tree root growth, flooding, and other natural causes that can result impressed secondary loading.
  - The need for additional pipeline identification markers in private right-of-ways and in rural areas
  - Damage to casing vents and leakage from encased pipe
- Locations or areas that are found to be potentially hazardous during patrolling may be patrolled more frequently based on the probable severity, timing, and duration of the hazard.
- Where practical, the patrol map or other documentation used by personnel performing the patrol should identify areas near the distribution line that may require special attention such as locations where earthmoving activities are regularly performed
  - In those areas where excavation activities are performed on a regular basis, consideration should also be given to providing those excavators with more frequent damage prevention and public awareness education materials

- *Places or structures where physical movement or external loading may cause leakage or failure should be identified based on the knowledge of the system characteristics and problem areas. Areas of consideration for distribution patrolling include, but are not limited to, the following:*
  - *Bridge crossings*
  - *Aerial crossings*
  - *Unstable river banks*
  - *Exposed water crossings*
  - *Areas susceptible to washout*
  - *Landslide areas*
  - *Areas susceptible to earth subsidence*
  - *Tunnels*
  - *Railroad crossings*
  - *Attachments to buildings or other structures*
  - *Facilities or support structures which require maintenance, until repaired*
  - *Certain areas of proximity to other Operator's facilities (Specific to Georgia)*
- Patrol reports should:
  - Indicate the nature and location of any deficiencies discovered
  - Indicate any hazardous or potentially hazardous condition found
  - Document any corrective action taken
  - If corrective action has not been taken, note any recommended action items
- If available, compare the current patrol conditions against conditions observed during previous patrols.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

B31Q Task # 1321 &1341	**Page 1 of 2**
Revision date: 8/24/12	**Version: 2.3**
Damage Prevention during Excavation Activities By or On Behalf of the Operator and Provide or Assure Adequate Pipeline Support During Operator Initiated Excavation Activities.	**TAB# 68**

SCOPE AND PURPOSE

This procedure is to assure the performance of damage prevention activities during excavation by the utility or its contractors. It describes damage prevention practices required to comply with §192.614.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that excavation by utility personnel or utility contractors is performed as described in this procedure.

If Operator believes pipeline could be damaged by excavation activities:

- An inspection must be performed as frequently as necessary during and after the activities to verify the integrity of the pipeline; and
- In the case of blasting, any inspection must include leakage surveys.

PERSONNEL SAFETY (Where Applicable)

Every reasonable precaution shall be taken to protect employees and the general public.

Maintain a safe distance from construction equipment and the edge of the excavation.

EQUIPMENT AND MATERIALS

As Needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. Before commencing any digging, check to see that the Blue Stakes Utility Location Center, 1-800-662-4111, has been notified and that all underground utilities have been properly marked. For proper marking refer to the requirements of Blue Stakes Utility Location Center, 1-800-662-4111.
b. Take care to protect and preserve the staking, marking or other designations for underground facilities until no longer needed for proper and safe excavation. Stop excavating and notify the "One-Call" Center for re-mark if any facility marking is removed or no longer visible
c. Hand dig near the markings to locate the buried facility. If directional boring is to occur, pothole to locate the marked facilities at the point where the bore is to cross the marked facilities.
d. Provide an observer to assist the equipment operator when excavating around known underground facilities.
e. If another utility line/cable is encountered during an excavation, power excavating should stop and the utility should be exposed using hand tools.
f. Provide proper support for exposed pipe, both those owned by the utility and facilities owned by other utilities. Support should be provided to avoid excessive sagging. All supports should be free from sharp edges.

(TASK#1321 & 1341-Page 2 of 2)

g. Ensure that care is exercised when digging or working around the utility's gas facilities. Care should be taken when equipment is working near exposed facilities.
h. If the excavation is near vehicular surfaces (streets, roadways, parking lots, etc.) ensure that suitable barricades are set up to protect against vehicular intrusion.
i. Nothing should be supported by exposed pipelines, cables and other exposed facilities.
j. Do not climb on, strike or attempt to move facilities.
k. Where possible, the soil excavated from the trench should be placed at least 2 feet from the edge of the trench to reduce the chance of cave-ins.
l. Shoring or other trench stabilization methods are required under the following circumstances:
   - when the trench depth is 5 feet or more (or less if specified in utility policy)
   - when the soil is loose and granular
   - when the soil is very wet or saturated
   - when a Competent Person determines that any combination of the above warrants shoring
m. When employees are required to be in trenches 4 feet deep or more, an adequate means of exit, such as an approved ladder or steps, should be provided and located so as to require no more than 25 feet of lateral travel. Ladders should extend at least 3 feet above the top of the trench and be secured.
n. A visual inspection of the pipe condition must be performed before the gas pipe is reburied (See Procedure # 0151).
o. Ensure that the backfill, even if it is the original soil, is free from old paving, rocks, debris, large clods or any other thing that might damage the pipeline or coating
p. If the pipeline has been supported during excavation, do not remove the supports until the soil under the piping has been compacted until it can support the pipeline adequately. Fill evenly from both sides and compact in lifts so that the compaction is even and resembles original soil. Do not compact excessively on plastic mains or on tapping tees or other facilities that can be damaged by soil movement.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0151 - Visual Inspection of Buried Pipe and Components When Exposed.
1291 - Locate Underground Pipelines.
1331 - Damage Prevention Inspection during Third Party Excavation or Encroachment Activities as Determined Necessary by Operator.

B31Q Task # 1331	Page 1 of 2
Revision date: 8/24/08	Version: 2.1
Damage Prevention Inspection during Third Party Excavation or Encroachment Activities.	TAB# 69

SCOPE AND PURPOSE

This procedure is to assure the performance of damage prevention activities during excavation by third parties. It describes damage prevention practices required to comply with §192.614.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to determine when observation of a third party excavation is necessary and to ensure that, when necessary, it is performed as described in this procedure.

If Operator believes pipeline could be damaged by excavation activities:

- An inspection must be performed as frequently as necessary during and after the activities to verify the integrity of the pipeline; and
- In the case of blasting, any inspection must include leakage surveys.

PERSONNEL SAFETY (Where Applicable)

Maintain a safe distance from construction equipment and the edge of the excavation.

In the event the gas line is ruptured evacuate all personnel to a location upwind of the leak and implement the Emergency Plan.

EQUIPMENT AND MATERIALS

None.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. When arriving at the excavation site, locate the person in charge and identify yourself as a representative of [insert utility name here]. Tell them that there are gas pipelines in the area and you are there to observe and assist them to locate and work safely around the gas piping.
b. Check that the [insert name of one-call center] has been notified and that all underground utilities have been properly marked. For proper marking refer to the requirements of [insert name of one-call center].
c. Re-mark following procedure # 1291 if the marking for the gas pipeline is removed or no longer visible.
d. Encourage the excavator to hand dig near the markings to locate the buried facility. If directional boring is to occur, pothole to locate the marked facilities at the point where the bore is to cross the marked facilities.
e. Ensure the excavator provides proper support for exposed pipe, both those owned by the utility and facilities owned by other utilities. Support should be provided to avoid excessive sagging. All supports should be free from sharp edges.
f. Ensure that care is exercised when digging or work around the utility's gas facilities. Care should be taken when equipment is working near exposed facilities.
g. Nothing should be hung from or slung over exposed gas pipelines.

h. If any portion of the utility's pipe is exposed, a visual inspection of the pipe condition must be performed before the gas pipe is reburied (See Procedure # 0151).
i. Ensure that the backfill, even if it is the original soil, is free from old paving, rocks, debris, large clods or any other thing that might damage the pipeline or coating
j. If the pipeline has been supported during excavation, do not remove the supports until the soil under the piping has been compacted until it can support the pipeline adequately. Fill evenly from both sides and compact in lifts so that the compaction is even and resembles original soil. Do not compact excessively on plastic mains or on tapping tees or other facilities that can be damaged by soil movement.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

0151 - Visual Inspection of Buried Pipe and Components When Exposed.
1291 - Locate Underground Pipelines.
1321 - Damage Prevention during Excavation Activities By or On Behalf of the Operator.

B31Q Task # 1651	**Page 1 of 4**
Revision date: 10/14/12	**Version: 2.1**
Purging-Flammable or Inert Gas.	**TAB# 70**

SCOPE AND PURPOSE

This procedure is to provide personnel with the necessary procedures for performing purging with gas, air, or inert gas as required by §192.629

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that purging with gas, air, or inert gas is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

- Personnel shall not perform purging operations until ignition and potential ignition sources are eliminated.
- Prior to the beginning of a purging operation, appropriate notifications shall be given to local public officials and the public in the vicinity of the purging operation if:
    - It is anticipated the release of gas/air may disturb normal traffic flow; and/or
    - It is anticipated that there may be calls from the public regarding the purging operation; and/or
    - It is anticipated that the public may be affected by the purging process by things such as:
        - High Noise Level
        - Strong Odor
        - Possibility of Accidental Ignition
- Whenever purging operations are in progress, a fire extinguisher must be present at the purging site at a suitable location.
- The discharge mechanism (purge stack) that is used to purge the gas/air must be metal (steel, copper, stainless steel, etc.) and an electrical ground applied so that the potential for static electricity is minimized – static electricity can be created by the friction of the gas/air molecules on the pipe walls. Plastic pipe is susceptible to static electricity buildup, especially at the ends of pipe.
- When purging larger diameter pipe, such as 2-inch diameter and larger where a large volume of gas/air is to be purged, the discharge mechanism should be smaller in diameter than the pipeline being purged.
- As a general rule, the discharge mechanism should not be larger than one-half the diameter of the pipeline being purged. This smaller diameter should help increase velocity of the gas passing through the discharge apparatus and may prevent flashback should the venting gas ignite.
- The discharge mechanism should extend high enough to expel the vented gas/air away from personnel and potential ignition sources.
- Prior to beginning a purging operation, a suitable location shall be chosen to reduce the risk to life, property, and the environment.
    - Particular consideration should be taken to avoid purging directly under or into power lines.
- Ensure that a means of adequate communication is available and established for purging operations where the purge stack location and the means for controlling the release of the air, gas, or inert gas is not in the same vicinity so that the flow may be halted in the event of an emergency.
- Suitable personal protective equipment shall be used by personnel commensurate with the purging operation. Example(s):
    - Flame Retardant Clothing
    - Eye Protection
    - Hearing Protection
    - Hand Protection
    - Other as Needed

EQUIPMENT AND MATERIALS

Combustible Gas Indicator (CGI).
Bonding Cable.
Discharge Mechanism (Riser).
Adapter Fitting(s).
Inert Gas (As Needed).
Air Compressor (As Needed).
Other Equipment and Materials as Needed.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform purging of a pipeline of air, gas, or inert gas. Refer to the OQ Plan for specific qualification requirements.

GENERAL

- Purging is the process of displacing gas/air within a pipeline or pipeline section with natural gas, air, or an inert gas.
  - *Purging a pipeline of air with gas is required:*
    - Whenever a pipeline or pipeline section is newly installed
    - Whenever a pipeline or pipeline section has been removed from service and is being re-activated
  - *Purging a pipeline of gas with air is required:*
    - Whenever a pipeline or pipeline section is to be abandoned or the pressure is removed for maintenance, etc.
    - However, the pipeline need not be purged when the volume of gas is so small that there is no potential hazard.
  - *Purging a pipeline with an inert gas is required:*
    - If gas cannot be supplied in a sufficient quantity to prevent the formation of a hazardous mixture of gas in air, a slug of inert gas should be released into the line before the gas.
    - If air cannot be supplied in sufficient quantity to prevent the formation of a hazardous mixture of gas and air, a slug of inert gas should be released into the line before the air.
- A combustible gas indicator (CGI) is the preferred method of verifying that the pipeline or pipeline section has been completely purged.

INSTRUCTIONS

Purging of Gas with Air or Inert Gas (Blow-down)

a. Determine the location for the purging operation.
b. Ensure that all potential ignition sources are removed and secure the area where the purging operation will take place.
c. Determine if notification(s) to public officials and/or the public is needed.
d. Ensure that fire extinguisher(s) and other appropriate personal protective equipment is available and in use, as needed.
e. Determine if a purge stack will needed to be installed or if service risers or other already installed piping may be used as a purge stack for the purging operation.
f. Isolate the pipeline section to be purged (Ex: Squeeze-Offs, Valves, Control Fittings, etc.). ***Note:*** *If squeezing plastic pipe, ensure that the squeeze-off tool is grounded.*
g. Install purge stack, if needed (see "e").
h. Ensure that all purge stacks are grounded by attaching a grounding cable to the stack on one end and attaching the other end to a ground rod driven into the ground.
   i. To help reduce the risk of a static electricity discharge if purging plastic pipelines, consideration should also be given to applying soapy-water soaked burlap strips/rags or other suitable conductive material around the area of the end of the plastic pipeline and

grounded by the use of a ground cable and ground rods.

i. Verify that the purge stack is of sufficient height to expel the vented gas/air away from personnel and potential ignition sources.
j. Open the valve or other mechanism that will release the gas through the purge stack in a moderately rapid continuous flow.
k. Once the gas has finished relieving, test the opening of the purge stack with a CGI to confirm that the atmosphere is well below the lower explosive limit L.E.L. of the gas being purged – *squeeze-off tools may not provide a 100% squeeze-off – care should be exercised in this situation.*
l. Disconnect the pipeline section that has been recently purged from the source of gas.
    i. ***Note:*** *when disconnecting steel pipelines, consideration shall be given to the use of bonding cables to bond across the area of separation to help prevent arcing.*
m. Prepare the disconnected end of the pipeline segment to accept air from a compressor or other suitable means.
    i. ***Note:*** *for small purging operations such as, but not limited to, blow-down of small sections of service line or main, further purging with air may not be necessary if the volume of gas is so small that it poses not potential hazard to life or property – if in doubt, purge with additional air.*
n. Using an air compressor or other suitable means, introduce air into the previously purged pipeline segment in a moderately rapid continuous flow – ***if air cannot be introduced in a moderately rapid continuous flow, a slug of inert gas shall be introduced into the pipeline before the air.***
o. Obtain readings with a CGI to verify that the atmosphere is well below the L.E.L of the gas being purged – continue purging until this is achieved.
p. At the conclusion of the purging operation, remove the purge stack and related equipment, if any (see "e").

Purging of Air with Gas or Inert Gas (Start-Up or Re-Commissioning)

a. Determine the location for the purging operation.
b. Ensure that all potential ignition sources are removed and secure the area where the purging operation will take place.
c. Determine if notification(s) to public officials and/or the public is needed.
d. Ensure that fire extinguisher(s) and other appropriate personal protective equipment is available and in use, as needed.
e. Determine if a purge stack will need to be installed or if service risers or other already installed piping may be used as a purge stack for the purging operation.
f. Install purge stack, if needed (see "e").
g. Ensure that all purge stacks are grounded by attaching a grounding cable to the stack on one end and attaching the other end to a ground rod driven into the ground.
    i. To help reduce the risk of a static electricity discharge if purging plastic pipelines, consideration should also be given to applying soapy-water soaked burlap strips/rags or other suitable conductive material around the area of the end of the plastic pipeline and grounded by the use of a ground cable and ground rods.
h. Verify that the purge stack is of sufficient height to expel the vented gas/air away from personnel and potential ignition sources.
i. Open the valve or other mechanism that will release the gas into the pipeline and force the air in the pipeline out through the purge stack in a moderately rapid continuous flow – ***if the gas cannot be introduced in a moderately rapid continuous flow, a slug of inert gas***

shall be introduced into the pipeline before the gas.

j. Periodically obtain CGI readings at the end of the purge stack – continue purging until 100% gas reading is obtain on the CGI.
   - ***Note:*** *when purging large sections of newly installed pipelines, the odorant in the gas may be absorbed in the pipe walls – this may result in the gas being purged to exhibit an un-odorized or a lack of odorant condition – DO NOT RELY ON YOUR SENSE OF SMELL TO DETERMINE IF ALL OF THE AIR IS PURGED FROM THE PIPELINE.*
   - ***Note:*** *for small sections of service line or main that would not introduce a significant amount of air into the gas stream and therefore would not pose a hazard, purging may not be necessary – if in doubt, purge the air out of the pipeline.*

k. Once a 100% gas reading is obtained, close the valve or other mechanism at the purge stack.

l. At the conclusion of the purging operation, remove the purge stack and related equipment, if any (see "e").

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

RELATED PROCEDURES

None.

B31Q Task # 1661	**Page 1 of 2**
Revision date: 4/14/08	**Version: 2.1**
Isolating, Abandoning and Deactivating Pipeline Facilities.	**TAB# 71**

SCOPE AND PURPOSE

This procedure provides personnel activities for isolating, abandoning and deactivating pipeline facilities. It describes practices required to comply with §192.727.

RESPONSIBILITY

The Pacific Energy & Mining Co., or other designee, is responsible to ensure that isolating, abandoning and deactivating pipeline is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

- Personnel shall ensure that safety conditions exist. Anytime components are disconnected from the gas distribution system, there is a chance that gas will escape and cause a hazard.
- Ignition and potential ignition sources should be eliminated.
- A fire extinguisher must be present at the site placed at a suitable location.
- Establish a safety perimeter to prevent bystanders and unauthorized personnel from entering the area of activity.
- Welding activities may not be performed on piping containing a natural gas and air mixture.
- Personnel shall consult the manufacturer's installation and operating instructions for complete information on the uses of different types and styles of isolation and stoppering devices, equipment and tools.

EQUIPMENT AND MATERIALS

Valve key wrench.
Ratchet wrench and socket.
Tapping tee hex wrench.
Stopper and drilling machines with tools and attachments.
Combustible gas indicator (CGI).
Routine hand tools.

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform isolating, abandoning and deactivating pipeline. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. Whenever a pipeline or pipeline section is to be isolated, abandoned, or deactivated, it shall be identified.
b. If branch lateral lines are connected to the pipeline section being shut down, either:
   - provide an alternate gas supply line (by pass), or
   - all interconnected piping must be identified and defined as part of the effected shut down piping.
c. Close appropriate valves utilize stopper fittings, end caps, blind flanges, or other appropriate devices to isolate the pipeline or facility.
d. If service lines are connected to the pipeline section being shut down:
   - all service valves should be secured by locking the valve in the closed position until service is reestablished to the customer's premises, and
   - if possible, all customers should be contacted and advised of the service interruption.
e. Purge isolated pipeline segment.
f. If the line is to be disconnected from other activated pipelines (abandoned in place), the piping being shut down must be thoroughly purged. However, the pipeline need not be purged when the volume of gas is so small that there is no potential hazard.

(TASK#1661-Page 2 of 2)

g. Personnel shall verify that the piping does not contain natural gas. A combustible gas indicator is to be employed for this task.
h. Gas being expelled into the atmosphere must be vented at a place or area where it will be discharged safely.
i. Seal ends of abandoned pipe.
j. For a service line, one of the following must be done to prevent the flow of gas to the customer:
   - lock or otherwise secure the valve controlling gas to the service, or
   - install a mechanical device or fitting in the service line or meter set, or
   - disconnect the customer's piping from the gas supply.
k. Remove any above ground facilities.

REPORTING/NOTIFICATION

Complete documentation in accordance with Operations and Maintenance Manual.

RELATED PROCEDURES

1641-1651 – Purging with Gas, Air, or Inert Gas.

Pacific Energy & Mining Company

APPENDIX B
Operator Qualification Plan

Paradox Natural Gas Pipeline, UT

Operator: Pacific Energy & Mining Company

PHMSA (OPID): 39049

This Appendix has been prepared in compliance with CFR Part 192.801 Subpart N Qualification of Pipeline Personnel.

10/21/2013

DISCLAIMER AND CONDITIONS OF USE

This Model Operator Qualification Plan ("Plan") was developed by the APGA Security and Integrity Foundation (SIF) to assist operators in the compliance of applicable Federal and State Regulations related to natural gas pipeline safety (the "Regulations") included in CFR Part 192.801 Subpart N Qualification of Pipeline Personnel. The SIF has endeavored to completely and accurately address the Regulations in this Plan; however, following the suggestions or advice set forth in this Plan may not lead to your compliance with applicable Regulations.

It is the sole responsibility of each operator to review, understand, and follow these regulations as they apply to the operator's natural gas system.

It is the responsibility of the Operator to internally review or retain the services of qualified legal and technical professionals to confirm:

(i) The completeness and accuracy of the suggestions and advice set forth in this Plan, and;

(ii) The applicability of such suggestions and advice to any natural gas system or emergency situation.

Table of Contents

PACIFIC ENERGY & MINING COMPANY'S OPERATOR QUALIFICATION PLAN

Part One: Purpose and Scope

1.1 Scope

This Operator Qualification Plan (OQ Plan) prescribes requirements for evaluating the qualifications of all persons performing certain operating and maintenance tasks listed in this OQ Plan on **Pacific Energy & Mining Company,** gas pipeline system. It is adopted to comply with minimum pipeline safety regulations at Title 49 Code of Federal Regulations (CFR), Part 192, Subpart N.

No company employee, employee of a contractor or any other person may perform any covered task identified in this Plan 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.

1.2 Purpose

The purpose of this Plan is to ensure safe and efficient gas service by:

- Establishing objective criteria of required qualifications for all persons performing safety-sensitive operations and maintenance tasks on the **Pacific Energy & Mining Company** gas piping system,
- Ensuring through evaluation that each person performing safety sensitive tasks on the **Pacific Energy & Mining Company** gas 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* means a condition identified by **Pacific Energy & Mining Company** 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.
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; and
   - Could affect the operation or integrity of the pipeline.
3. Evaluation means a process, established by the APGA Security and Integrity Foundation (SIF) and documented by **Pacific Energy & Mining Company** to determine an individual's ability to perform a covered task by the following: written examination or oral examination, and hands-on ability evaluation.
4. *Operator* means **Pacific Energy & Mining Company.**
5. *Person* means any individual, firm, joint venture, partnership, corporation, association, State, municipality, cooperative association, or joint stock association, including any trustee, receiver, assignee, or personal representative thereof.
6. *Pipe* means any pipe or tubing used in the transportation of gas, including pipe-type holders.
7. *Pipeline* means all parts of those physical facilities through which gas moves in transportation, including pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, 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 in the treatment of gas 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.

1.4 Planning for Mergers and Acquisitions

At the present time the owners of **Pacific Energy & Mining Company** are not in the process of releasing the **Paradox Natural Gas Pipeline** property. It is understood that if negotiations begin toward this activity then the new potential owner will be made aware of the commitment of having qualified individuals as outlined in federal code CFR 192 Subpart N "Qualification of Pipeline Personnel" prior to completing a merger and/or acquisition. A process will be implemented for ensuring OQ qualifications, evaluations, and performance of covered tasks are identified during the merger with or acquisition of this entity.

Part Two: Employee Responsibilities

2.1 Plan Administration

The **Pacific Energy & Mining Company** Manager or designee is designated as Plan Administrator and is responsible for the total 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; provision of the Plan available for inspection by authorized agents of regulatory agencies; ensurance that all milestones, periodic evaluation intervals, etc. are conducted as specified in this Plan; notification to all company employees in advance of the date that an employee's current qualification will expire; scheduling evaluations; documentation of the results of evaluations; documentation and maintenance of a current list of qualified employees; continuous review of Federal and State regulations that affect this Plan and/or it revision; and such other activities as are necessary to carry out the scope and purpose of this Plan.

2.2 General Employee and Contract Individual's Responsibilities

All employees and contract individuals are expected to be aware that covered tasks (listed in Attachment A to this Plan) may only be performed by persons qualified under this Plan. Any employee observing any of these covered tasks being performed on the **Pacific Energy & Mining Company** gas 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 who 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 per Part 6.1.1. It is not sufficient that the qualified person be in the general vicinity, but must observe each step of the task. One qualified person may direct and observe up to two non-qualified persons at one time performing one or more covered tasks consistent with the ability of the qualified person to observe and direct the performance of the covered task(s) at the same time or have one task suspended while the other is being performed.

2.3 Specific Responsibilities

2.3.1 *The Plan Administrator is responsible to ensure that all contracts for the performance of operations and maintenance tasks on company facilities incorporate the list of covered tasks in Attachment A 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 **Pacific Energy & Mining Company** and contractor personnel are aware of those tasks in Attachment A 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 listed in Attachment A unless that person is directed and observed by a person who is qualified for that task. Routine inspection procedures should include review of the qualifications of personnel.

2.3.3 Supervisors are responsible to ensure that their subordinates are aware of the current list of covered tasks in Attachment A and that they are not to perform these tasks unless they possess current qualifications from the company in accordance with **Pacific Energy & Mining Company** OQ Plan to perform these tasks or are directed and observed by a qualified person. Supervisors should obtain an up-to-date list of the qualifications of their subordinates from the Plan Administrator.

Supervisors are to immediately report to the Plan Administrator if they have reason to believe that any of their subordinates 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, physical or mental limitations, or other reasons listed in 6.1.1.

Part Three: Identification of Covered Tasks

3.1 Responsibility

The Plan Administrator is responsible for maintaining an up-to-date listing of covered tasks and must approve modifications or additions to the covered task list. For any new covered task the Plan Administrator must identify the Knowledge, Skills, Abilities, Abnormal Operating Conditions and re-evaluation intervals specific to the covered task. The rationale for any changes to the covered task list shall be recorded by the Plan Administrator.

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; and
- Could affect the operation or integrity of the pipeline.

Tasks that have been evaluated against the four-part test are listed in Attachment A to this Plan. The Plan Administrator shall apply the four-part test to determine whether any new activities not addressed in Attachment A are covered tasks when performed on **Pacific Energy & Mining Company** facilities.

3.3 Records

The current list of covered tasks is shown as Attachment A to this Plan.

Part Four: Evaluation method

4.1 Responsibility

Initial and subsequent evaluation methods for qualification to perform covered tasks listed in Attachment A are knowledge-based classroom presentations with written or oral examinations, and hands-on skills and abilities evaluations. Records of completed evaluations are the responsibility of the Plan Administrator.

4.2 Specified evaluation methods

The required evaluation(s) for each covered task shall be maintained by the Plan Administrator and are identified as the knowledge-based classroom presentation (with written or oral examinations) and skills and abilities evaluations.

4.3 Re-evaluation intervals

The time period during which each person's qualifications to perform a covered task shall be reevaluated shall not exceed three (3) years. **Pacific Energy & Mining Company** will review difficulty, frequency and level of risk of the tasks performed by the person being qualified and revise the reevaluation interval accordingly.

4.4 Evaluation Criteria

Successful completion of the knowledge-based evaluation, either written or oral, requires a score of 70%. All of the required skills and abilities must be passed or retraining and successful evaluation must be completed on those that did not pass.

Part Five: Identification of persons performing covered tasks

5.1 Responsibility

The Plan Administrator is responsible for identifying those employees who perform covered tasks during the course of their work on the **Pacific Energy & Mining Company** gas 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 Plan Administrator shall maintain a list of persons and the covered tasks they are qualified to perform.

5.2 Recordkeeping

The Plan Administrator shall 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 Plan Administrator shall also maintain records of all actions performed as requirements of this OQ Plan:

- Processes for identification of covered tasks;
- Evaluation records, including the evaluator;
- Investigations of incidents;
- Reevaluation on reasonable suspicion;
- Communication of changes

5.3 Record retention

All records required by this Plan, including contractor records, must be retained for five (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 the **Pacific Energy & Mining Company** gas system, or
- A person has successfully retaken the evaluation.

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

6.1 Responsibility

The Plan Administrator 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 Plan Administrator is responsible for scheduling reevaluation activities prior to the expiration date of qualifications for each employee.

6.1.1 Reevaluation upon reason to believe that the individual is no longer qualified

Each employee is responsible for notifying the Plan Administrator whenever he/she has reason to believe that any person working on the **Pacific Energy & Mining Company** gas 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 Plan Administrator shall investigate and require reevaluation in the covered task. **Form OQ-1** shall be completed for each task and person for which work performance has been documented as poor or the subject employee has been found to be involved in a reportable incident per 49 CFR §191.3. The results of the investigation shall be recorded and maintained for five (5) years.

6.1.2 Reevaluation of persons implicated in a reportable incident

Investigation of reportable incidents[1] shall include assessment of whether any person's performance of a covered task may have caused or contributed to the incident. Sometimes the investigation may take longer than originally anticipated. The operator should ensure that the individual who may have contributed to the incident does not perform the covered task(s) in question, unless directed and observed by a qualified individual until the investigation is completed and it has been determined the individual's actions contributed to the incident. If the Plan Administrator determines that a **Pacific Energy & Mining Company** employee's or contractor employee's performance of a covered task contributed to a reportable incident, qualifications related to the incident shall be reevaluated. If the Plan Administrator has reason to believe that an the individual is no longer qualified to perform the covered task, that individual will have to be re-qualified to the same criteria as initial qualification, written and/or oral examination and hands on evaluation including appropriate training as necessary. The results of the investigation shall be recorded using **Form OQ-1** and maintained for five (5) years.

[1] Per Federal Code reportable incidents are any accident involving a release of gas that results in a death, injury requiring hospitalization or property loss exceeding $50,000. Operators should also verify with their state regulatory agency for additional or more stringent reporting requirement.

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

The Plan Administrator 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 reevaluation 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 (KSA) than those measured by the current evaluation method(s). The Plan Administrator will communicate e.g. meeting, email, etc., with all affected individuals and contractors to make them aware of these changes. These changes may include changes in the O & M and/or Emergency Procedures. The communication will occur as soon after the changes are made as practical. The results of this process shall be recorded using the "Operator Qualification Management of Change Communication Log" in Attachment D.

NOTE: See Attachment D, page 93 of the plan for "Notification of Significant Program Changes" to federal/state regulatory officials.

6.2 Reevaluation

As soon as possible after determining that reevaluation is necessary under section 6.1 of this Plan, the Plan Administrator shall schedule a reevaluation of qualifications for the employee or contractor employee. Until such reevaluation 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. All reevaluation records shall be documented and maintained by the Plan Administrator.

Last Name:	First Name:	ID #:
Task:		

Form OQ-1 – Requalification for Cause or Poor Task Performance

This form is to be used to re-qualify persons to perform a covered task based on involvement related to a reportable incident per 49 CFR §191.3, or demonstrated poor work performance.

Results of records review

	Yes	No	N/A
Review performance reviews for past five (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/incidents or poor performance. Has this person been cited for poor performance of this task or ever been implicated in an accident/incident 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			

Reviewer(s):

Date:____/____/____

Part Seven: Qualification of contractor employees to perform covered tasks

7.1 Responsibility

Pacific Energy & Mining Company is responsible for assuring that contractor employees and employees of their subcontractors are qualified if they are to perform covered tasks on **Pacific Energy & Mining Company**'s gas piping system.

7.2 Evaluation of contractor employees

Contractors and other non-**Pacific Energy & Mining Company** employees who perform covered tasks on **Pacific Energy & Mining Company** gas facilities must be qualified if they perform any of the covered tasks listed in Attachment A.

Qualification may be accomplished by any one of the following:

Pacific Energy & Mining Company may evaluate the contractor employees using the evaluations required of **Pacific Energy & Mining Company** employees performing the same task(s) listed in Attachment A, or;

Contractors and other non-**Pacific Energy & Mining Company** employees who perform covered tasks included in Attachment A, on **Pacific Energy & Mining Company** gas facilities may provide evidence that all contract personnel have completed evaluations equivalent to those listed in Attachment B for the covered tasks they will perform. **Pacific Energy & Mining Company** has reviewed and adopted the evaluation methods used by contractors as approved methods for qualifying contractors or as an accepted equivalent alternative method to that found in Attachment B, or **Pacific Energy & Mining Company** has reviewed and adopted certain third-party certification/qualification programs as accepted evaluation methods for certain covered tasks. Contractor personnel possessing current qualifications from these third parties may be accepted by **Pacific Energy & Mining Company** as evidence of qualification.

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

The Plan Administrator should be notified immediately if any **Pacific Energy & Mining Company** 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 third-party has qualified the contractor employee, the Plan Administrator should also notify the third-party qualification agency.

Part Eight: Operations and Maintenance Employees

8.1 Identification

Employee Name	Employee Job Title	Employee Hire Date

Part Nine: Plan review for assessment of improvement

Pacific Energy & Mining Company will perform an annual review of the OQ Plan including covered tasks listed in Attachment A, skills and abilities evaluations, knowledge-based classroom presentations and associated written examinations, abnormal operating conditions as well as reevaluation intervals. This review will include an assessment for improvement of any and all segments of the OQ Plan. The Plan Administrator will maintain a copy of the results of this review including all decisions to delete, add, and/or revise the subject plan segments as well as the particular rationale for such modification(s).

Attachment A: Identified Covered Tasks

.'he following tasks performed on **Pacific Energy & Mining Company**'s pipelines have been evaluated and found to pass the four-part test to be covered tasks subject to the Operator Qualification (OQ) Rule:

CONSTRUCTION

While construction tasks, by definition, cannot be covered tasks subject to the OQ Rule, some maintenance tasks listed in this section may also be performed in the course of construction activities and will be covered when performed in such circumstances. **Pacific Energy & Mining Company,** however, shall evaluate all construction tasks and determine the appropriate operator qualifications as detailed in section 7.2.

CORROSION CONTROL COVERED TASKS

SIF 0001 Measure Structure-to-electrolyte Potential
SIF 0031 Inspect and Monitor Galvanic Ground Beds/Anodes
SIF 0051 Installation of Exothermic Electrical Connections
SIF 0071 Inspect or Test Cathodic Protection Electrical Isolation Devices
SIF 0081 Install Cathodic Protection Electrical Isolation Devices
SIF 0101 Inspect Rectifier and Obtain Readings
SIF 0111 Maintain Rectifier
SIF 0141 Visual Inspection for Atmospheric Corrosion
SIF 0151 Visual Inspection of Buried Pipe and Components When Exposed
SIF 0161 Visual Inspection of Internal Corrosion
SIF 0171 Measure External Corrosion
SIF 0181 Measure Internal Corrosion
SIF 0191 Measure Atmospheric Corrosion

LEAK INVESTIGATION COVERED TASKS

SIF 1231 Inside Gas Leak Investigation
SIF 1241 Outside Gas Leak Investigation
SIF 1261 Walking Gas Leakage Survey

DAMAGE PREVENTION COVERED TASKS

SIF 1291 Locate Underground Pipelines
SIF 1301 Install and Maintain Pipeline Markers
SIF 1311 Inspect Pipeline Surface Conditions – Patrol of Right of Way or Easement
SIF 1321 Damage Prevention During Excavation Activities by or on Behalf of the Operator
SIF 1331 Damage Prevention Inspection During Third-Party Excavation or Encroachment Activities as Determined by the Operator
SIF 1341 Provide/Assure Adequate Pipeline Support During Operator Initiated Excavation Activities

TAPPING COVERED TASKS

SIF 1101 Tapping a Pipeline with a Built-in Cutter

VALVE COVERED TASKS

SIF 0301 Manually Opening and Closing Valves
SIF 0321 Valve Corrective Maintenance
SIF 0331 Valve – Visual Inspection and Partial Operation
SIF 0341 Valve – Preventive Maintenance

PURGING AND ABANDONMENT COVERED TASKS

SIF 1651 Purging – Flammable or Inert Gas
SIF 1701 Isolating, Abandoning and Deactivating

PRESSURE TESTING COVERED TASKS

SIF 0571 Pressure Testing – Non-liquid Medium – Test Pressure Greater Than or Equal to 100 psi
SIF 0591 Leak Test at Operating Pressure

REGULATING DEVICES COVERED TASKs

SIF 0381 Spring Loaded Pressure Regulating Devices
SIF 0391 Pilot Operated Pressure Regulating Devices
SIF 0411 Spring Loaded Pressure Limiting and Relief Device
SIF 0421 Pilot Operated Pressure Limiting and Relief Device

PIPELINE REPAIR COVERED TASKS

SIF 0201 Visual Inspection of Installed Pipe and Components for Mechanical Damage
SIF 0711 Joining of Pipe – Compression Couplings
SIF 0721 Joining of Pipe – Threaded Joints
SIF 0731 Joining of Pipe - Flange Assembly
SIF 0991 Coating Application and Repair – Brushed or Rolled
SIF 1001 Coating Application and Repair - Sprayed
SIF 1011 External Coating Application and Repair – Wrapped
SIF 1041 Install Mechanical Clamps and Sleeves – Bolted
SIF 1151 Squeeze Off Steel Pipe

PIPELINE INSTALLATION COVERED TASKS

SIF 0641 Visually Inspect Pipe and Components Prior to Installation
SIF 0861 Installation of Steel Pipe in a Ditch
SIF 0871 Installation of Steep Pipe in a Bore
SIF 0951 Install of Pipe Above Ground
SIF 0961 Above Ground Supports and Anchors – Inspection, Preventive and Corrective Maintenance
SIF 0971 Installation and Maintenance of Casing Spacers, Vents and Seals
SIF 0981 Backfilling

Each individual performing covered tasks on **Pacific Energy & Mining Company**'s piping system must be able to recognize and react to identified abnormal operating conditions (AOCs). AOCs that may occur during performance of covered tasks are listed in Attachment C.

Recognition and reaction to AOCs are evaluated utilizing a written AOC recognition and reaction examination.

Attachment B: Evaluation Methods Incorporated by Reference

The following evaluation methods have been accepted by **Pacific Energy & Mining Company** and have been determined to be acceptable for qualification in the tasks indicated when contracting associated covered task work:

API 1104 Welder Qualification (maintenance welding tasks)

NACE Technician Level Certification (cathodic protection tasks)

Attachment C: Identified Covered Tasks and Knowledge, Skills and Abilities (KSA) and Abnormal Operating Conditions (AOC) Required for Qualification

OPERATOR QUALIFICATION

TRAINING AND EVALUATION

APGA Security and Integrity Foundation

SIF Covered Tasks

Knowledge, Skills and Abilities
Abnormal Operation Conditions

2013

Corrosion Control

Knowledge, Skills and Abilities
Abnormal Operation Conditions

Task 0001 Measure Structure - to - Electrolyte Potential

From ASME B31Q:
Includes using measurement equipment to take a reading of the potential between the pipe being tested and the soil.

1) Identify Requirements
2) Perform equipment check
3) Identify & locate correct test point
4) Measure and ensure accuracy of structure-to-electrolyte potential
5) Recognize & react to Abnormal Operating Conditions
6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of cathodic protection (CP) criteria
Knowledge of basic electric principles (voltage, current, resistance, ohms law, etc.)
Knowledge in the use and care of cathodic protection instrumentation
Knowledge of cathodic protection test stations
Ability to use equipment to take pipe-to-soil readings

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/failure of a pipeline component (T/S) • Low structure-to-electrolyte potential • Stray current on a pipeline	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **June, 2013**

Task 0031 Inspect and Monitor Galvanic Ground Beds/Anodes

From ASME B31Q:

This task includes inspecting and monitoring the electric potential of galvanic ground beds/anodes.

1) Identify Requirements
2) Perform test equipment check
3) Identify & locate correct test point
4) Obtain current output
5) Recognize & react to Abnormal Operating Conditions
6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of cathodic protection (CP) criteria
Knowledge of basic electric principles (voltage, current, resistance, ohms law, etc.)
Knowledge in the use and care of cathodic protection instrumentation
Knowledge of cathodic protection test stations and shunt resistors
Skill to use to properly use Copper Sulfate references and digital voltmeters
Ability to use equipment to take pipe-to-soil readings

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/failure of a pipeline component (T/S) • Low structure-to-electrolyte potential • Stray current on a pipeline	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: **November 2008**
Revised: **June 2013**

Task 0051 Installation of Exothermic Electrical Connections

From ASME B31Q:

This task includes making exothermic (e.g. thermite, cadweld and pin-brazing) connections of tracer wire, test leads, bonds, shunts, etc.

1) Identify Requirements
2) Perform test equipment check
3) Perform exothermic connection
4) Verify mechanical integrity and electrical continuity
5) Recognize & react to Abnormal Operating Conditions
6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of cathodic protection principals
Knowledge of basic electric principles (voltage, current, resistance, ohms law, etc.)
Knowledge of safe use of exothermic charges and the appropriate charge required
Knowledge of minimum wall thickness needed for exothermic welding
Ability to recognize active corrosion
Ability to measure pipe wall thickness
Ability to pin braze
Ability to use equipment to take pipe-to-soil readings

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/failure of a pipeline component (T/S) • Low structure-to-electrolyte potential • Stray current on a pipeline	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: **November, 2008**
Revised: **June 2013**

Task 0071 Inspect or Test Cathodic Protection Electrical Isolation Devices

.·rom ASME B31Q:

This task includes inspecting the physical integrity and testing electrical isolation devices.

1) Identify Requirements
2) Perform test equipment check
3) Inspect or test isolation devices
4) Recognize & react to Abnormal Operating Conditions
5) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of cathodic protection (CP) principals
Knowledge of basic electric principles (voltage, current, resistance, ohms law, etc.)
Knowledge in the use and care of cathodic protection instrumentation
Knowledge of cathodic protection isolation devices
Ability to use equipment to take pipe-to-soil readings
Ability to use magnetic isolation tester

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/failure of a pipeline component (T/S) • Low structure-to-electrolyte potential • Stray current on a pipeline – Electric shock	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: June, 2013

Task 0081 Install Cathodic Protection Electrical Isolation Devices

From ASME B31Q:

Includes the installation of electrical isolation devices.

1) Identify Requirements
2) Install Isolation Devices
3) Recognize & React to Abnormal Operating Conditions
4) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of cathodic protection (CP) criteria
Knowledge of basic electric principles (voltage, current, resistance, ohms law, etc.)
Knowledge in the use and care of cathodic protection instrumentation
Knowledge of the material properties and installation of insulated bolt sleeves and washers
Ability to use equipment to take pipe-to-soil readings
Ability to measure voltage and current
Knowledge and ability to install and repair bolted/unbolted insulted joints, bolted flanges and fittings, clamps and other mechanical insulated fittings

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/failure of a pipeline component (T/S, isolation device) • Low structure-to-electrolyte potential • Stray current on a pipeline	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **June, 2013**

Task 0101 Inspect Rectifier and Obtain Readings

From ASME B31Q:

Includes inspecting the rectifier for damage and deterioration and taking readings

1) Identify Requirements
2) Perform test equipment check
3) Visually inspect rectifier
4) Obtain voltage and current output readings
5) Recognize and react to AOCs
6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of basic electric principles (voltage, current, resistance, ohms law, etc.)
Knowledge of electrical safety
Knowledge of cathodic protection (CP) criteria
Knowledge in the use and care of cathodic protection instrumentation
Knowledge of CP rectifiers and rectifier systems
Ability to Measure Voltage and current on a Cathodic Protection Rectifier

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/failure of a pipeline component (Rectifier) • Low structure-to-electrolyte potential • Stray current on a pipeline	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: June, 2013

Task 0111 Maintain Rectifier

From ASME B31Q:

This task includes verification that the rectifier is functioning within specified parameters, after a rectifier has been hung and AC power connected, and prior to or during placing in service. This task also includes actions to repair or replace in service rectifiers or components.

1) Identify Requirements
2) Perform test equipment check
3) Test/troubleshoot rectifier
4) Repair or replace defective rectifier components
5) Place in service
6) Adjust output
7) Recognize & react to Abnormal Operating Conditions
8) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of cathodic protection (CP) principals
Knowledge of basic electric principles (voltage, current, resistance, ohms law, etc.)
Knowledge in the use and care of cathodic protection instrumentation
Knowledge of cathodic protection rectifiers
Ability to operate digital volt and amp meters

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/failure of a pipeline component (T/S) • Low structure-to-electrolyte potential • Stray current on a pipeline – Electric shock	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: June, 2013

From ASME B31Q:

Includes inspecting piping and components exposed to the atmosphere for the purpose of .etecting atmospheric corrosion

1) Identify requirements
2) Inspect protective coating
3) Inspect for atmospheric corrosion
4) Recognize and react to AOCs
5) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of the causes of atmospheric corrosion
Ability to Recognize Atmospheric Corrosion

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Stray current on a pipeline	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **June, 2013**

Task 0151 Visual Inspection of Buried Pipe and Components When Exposed

From ASME B31Q:

Includes the inspection of buried pipe and pipe components when exposed for the purpose of detecting external corrosion and evaluating coating integrity

1) Identify requirements
2) Inspect protective coating
3) Inspect external surfaces of pipe and components
4) Recognize and react to AOCs
5) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of the causes of corrosion

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate

Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: June, 2013

Task 0161 Visual Inspection for Internal Corrosion

From ASME B31Q:

This task includes the inspection of the internal surface of pipe and pipeline components, including tapping coupons, when exposed for the purpose of detecting internal corrosion.

1) Identify Requirements

2) Inspect protective coating
3) Inspect internal surfaces of pipe, components and tapping coupons 4) Recognize ; react to Abnormal Operating Conditions
5) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of cathodic protection (CP) principals
Ability to spot active corrosion

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate

Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Low structure-to-electrolyte potential • Stray current on a pipeline	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **June, 2013**

Task 0171 Measure External Corrosion

From ASME B31Q:

This task includes activities to measure and characterize external corrosion, including investigation to determine the extent of corrosion and recording data to determine corrective action.

1) Identify Requirements (procedures, practices, equipment, method)
2) Prepare surface
3) Perform test equipment check
4) Take measurements (Length, depth, width, thickness, etc.)
5) Identify characteristics of corrosion
6) Recognize & react to Abnormal Operating Conditions
7) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of cathodic protection (CP) criteria
Knowledge of basic electric principles (voltage, current, resistance, ohms law, etc.)
Knowledge in the use and care of cathodic protection instrumentation
Ability to use equipment to take pipe-to-soil readings
Ability to measure metal loss

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate

Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Low structure-to-electrolyte potential • Stray current on a pipeline	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: June, 2013

Task 0181 Measure Internal Corrosion

From ASME B31Q:

This task includes activities to measure and characterize internal corrosion, including investigation to determine the extent of corrosion and recording data.

1) Identify requirements
2) Prepare surface
3) Perform test equipment check
4) Take measurements
5) Identify characteristics of corrosion
6) Recognize & react to Abnormal Operating Conditions
7) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of cathodic protection (CP) principals
Knowledge of basic electric principles (voltage, current, resistance, ohms law, etc.)
Knowledge in the use and care of cathodic protection instrumentation
Ability to use equipment to measure pit depth
Ability to use equipment to measure pipe wall thickness
Ability to use equipment to take pipe-to-soil readings

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Low structure-to-electrolyte potential • Stray current on a pipeline	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **June, 2013**

Task 0191 Measure Atmospheric Corrosion

From ASME B31Q:

This task includes activities to measure and characterize atmospheric corrosion, including investigation to determine the extent of corrosion and recording data to determine corrective action.

1) Identify Requirements
2) Prepare surface
3) Perform test equipment check
4) Take measurements
5) Identify characteristics of corrosion
6) Recognize & react to Abnormal Operating Conditions
7) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge in the use and care of cathodic protection instrumentation
Knowledge of causes of atmospheric corrosion
Ability to recognize atmospheric corrosion
Ability to measure metal loss

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Low structure-to-electrolyte potential • Stray current on a pipeline	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **June, 2013**

Valve Covered Tasks

Knowledge, Skills and Abilities
Abnormal Operation Conditions

Task 301 Manually Opening and Closing Valves

rom ASME B31Q:

Includes manually opening and closing valves (e.g. pipeline start up and shutdown, flow direction, pigging, tank switching, etc.) at the valve site, either manually or using the valve actuator. It also includes valve identification, notification and pressure verification.

(1) Identify requirements
(2) Verify valve identification
(3) Identify segment(s) that requires manual valve operation
(4) Complete notifications
(5) Open and close valve
(6) Verify pressure
(7) Recognize and react to AOCs
(8) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of the principles of operation of different types of valves
Skills in operating gas valves
Ability to read pipeline drawings and maps

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Flow Rate Deviation • No Flow • Unplanned Decrease in Flow • Unplanned Increase in Flow	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **June, 2013**

Task 0321 Valve Corrective Maintenance

From ASME B31Q:

This task includes the repair, replacement, alteration or refurbishment of valves, except valves for the temporary isolation of service lines and service discontinuance as addressed in CT 1251 – Maintenance of Service Valves Upstream of Customer Meters.

1) Identify Requirements
2) Verify valve identification
3) Perform valve corrective maintenance
4) Lubricate valve
5) Recognize and react to Abnormal Operating Conditions
6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of the operation and maintenance of different type of valves
Knowledge of MAOP of system
Knowledge of the appropriate lubricant and valve flush compounds
Ability to read pipeline drawing and maps
Ability to isolate line segments either side of valve if necessary

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Flow Rate Deviation • No Flow • Unplanned Decrease in Flow • Unplanned Increase in Flow	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: June, 2013

Task 331 Valves – Visual Inspection and Partial Operation

rom ASME B31Q:

Includes visual inspection, partial operation (function test), and lubrication of valves, except valves for temporary isolation of service lines and service discontinuance.

(1) Identify requirements
(2) Verify identification of valves
(3) Visually inspect and partially operate (function test)
(4) Lubricate valve
(5) Recognize and react to AOC
(6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of the principles of operation of different types of valves
Skills in operating gas valves
Ability to read pipeline drawings and maps

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Flow Rate Deviation • No Flow • Unplanned Decrease in Flow • Unplanned Increase in Flow	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: June, 2013

Task 341 Valves – Preventive Maintenance

. rom ASME B31Q:

Encompasses actions (e.g., lubrication, winterization, packing adjustment, etc.), to keep valves operating safely and efficiently.

(1) Identify requirements
(2) Verify identification of valves
(3) Perform preventive maintenance
(4) Lubricate valve
(5) Recognize and react to AOC
(6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of the principles of operation of different types of valves
Skills in operating gas valves
Ability to read pipeline drawings and maps

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Flow Rate Deviation • No Flow • Unplanned Decrease in Flow • Unplanned Increase in Flow	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: June, 2013

Regulating Devices Covered Tasks

Knowledge, Skills and Abilities
Abnormal Operation Conditions

Task 0381 Spring Loaded Pressure Regulating Devices

From ASME B31Q:

Includes verification that the pressure-regulating device is functioning within specified parameters, after installation, and prior to or during placing in service. This task also includes the repair or replacement, alteration or refurbishment of pressure regulating devices, and actions to keep the pressure-regulating device operating safely and efficiently. This task excludes customer regulation. This task excludes B31Q 1161 and 1181.

(1) Identify requirements
(2) Verify identification
(3) Perform test equipment check
(4) Visually inspect
(5) Conduct performance test
(6) Perform preventive and corrective maintenance
(7) Verify MAOP –(Added by SIF)
(8) Adjust set point (s)
(9) Place in service
(10) Recognize and react to Abnormal Operating Conditions
(11) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of properties of gas
Knowledge of ignition sources
Knowledge of use and care of personal protective equipment
Knowledge in the use and care of pressure measurement equipment
Knowledge of overpressure protection device operations
Knowledge of regulator operations
Knowledge of MAOP
Knowledge of confined space entry
Skills in using, inspecting, and calibrating pressure recording devices
Skills in using and inspecting pressure gauges
Skills in using and inspecting telemeter devices
Skills is basic pipe fitting
Ability to recognize atmospheric corrosion

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Pressure Deviation • No Pressure • Unplanned Decrease in Pressure • Unplanned Increase in Pressure	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Activation of a Safety Device(s) other than planned testing • Emergency Shutdown • High Pressure Shutdown • High Temp. Shutdown • Pressure Relief Valve Relieving	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan, as needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **July, 2013**

Task 0391 Pilot Operated Pressure Regulating Devices

From ASME B31Q:

Includes verification that the pressure-regulating device is functioning within specified parameters, after installation, and prior to or during placing in service. This task also includes the repair or replacement, alteration or refurbishment of pressure regulating devices, and actions to keep the pressure-regulating device operating safely and efficiently. This task excludes customer regulation. This task excludes B31Q 1161 and 1181.

(1) Identify requirements
(2) Verify identification
(3) Perform test equipment check
(4) Visually inspect
(5) Conduct performance test
(6) Perform preventive and corrective maintenance
(7) Verify MAOP – (Added by SIF)
(8) Adjust set point (s)
(9) Place in service
(10) Recognize and react to Abnormal Operating Conditions
(11) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of properties of gas
Knowledge of ignition sources
Knowledge of use and care of personal protective equipment
Knowledge in the use and care of pressure measurement equipment
Knowledge of overpressure protection device operations
Knowledge of regulator operations
Knowledge of MAOP
Knowledge of confined space entry
Skills in using, inspecting, and calibrating pressures recording devices
Skills in using and inspecting pressure gauges
Skills in using and inspecting telemeter devices
Skills is basic pipe fitting
Ability to recognize atmospheric corrosion

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Pressure Deviation • No Pressure • Unplanned Decrease in Pressure • Unplanned Increase in Pressure	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Activation of a Safety Device(s) other than planned testing • Emergency Shutdown • High Pressure Shutdown • High Temp. Shutdown • Pressure Relief Valve Relieving	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan, as needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **July, 2013**

Task 0411 Spring Loaded Pressure Limiting and Relief Device

From ASME B31Q:

Includes verification that the pressure limiting or relief device is functioning within specified parameters, after installation, and prior to or during placing in service. This task also includes the repair or replacement, alteration or refurbishment of pressure limiting or relief device, and actions to keep the pressure limiting or relief device operating safely and efficiently. This task excludes customer regulation. This task excludes B31Q 1161 and 1181.

(1) Identify requirements
(2) Verify identification
(3) Perform test equipment check
(4) Visually inspect
(5) Conduct performance test
(6) Perform preventive and corrective maintenance
(7) Verify MAOP – (Added by SIF)
(8) Adjust set point (s)
(9) Place in service
(10) Recognize and react to Abnormal Operating Conditions
(11) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of properties of gas
Knowledge of ignition sources
Knowledge of use and care of personal protective equipment
Knowledge in the use and care of pressure measurement equipment
Knowledge of overpressure protection device operations
Knowledge of regulator operations
Knowledge of MAOP
Knowledge of confined space entry
Skills in using, inspecting, and calibrating pressures recording devices
Skills in using and inspecting pressure gauges
Skills in using and inspecting telemeter devices
Skills is basic pipe fitting
Ability to recognize atmospheric corrosion

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Pressure Deviation • No Pressure • Unplanned Decrease in Pressure • Unplanned Increase in Pressure	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Activation of a Safety Device(s) other than planned testing • Emergency Shutdown • High Pressure Shutdown • High Temp. Shutdown • Pressure Relief Valve Relieving	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan, as needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: July, 2013

Task 0421 Pilot Operated Pressure Limiting and Relief Device

From ASME B31Q:

Includes verification that the pressure limiting or relief device is functioning within specified parameters, after installation, and prior to or during placing in service. This task also includes the repair or replacement, alteration or refurbishment of pressure limiting or relief device, and actions to keep the pressure limiting or relief device operating safely and efficiently. This task excludes customer regulation. This task excludes B31Q 1161 and 1181.

(1) Identify requirements
(2) Verify identification
(3) Perform test equipment check
(4) Visually inspect
(5) Conduct performance test
(6) Perform preventive and corrective maintenance
(7) Verify MAOP –(Added by SIF)
(8) Adjust set point (s)
(9) Place in service
(10) Recognize and react to Abnormal Operating Conditions
(11) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of properties of gas
Knowledge of ignition sources
Knowledge of use and care of personal protective equipment
Knowledge in the use and care of pressure measurement equipment
Knowledge of overpressure protection device operations
Knowledge of regulator operations
Knowledge of confined space entry
Skills in using, inspecting, and calibrating pressures recording devices
Skills in using and inspecting pressure gauges
Skills in using and inspecting telemeter devices
Skills is basic pipe fitting
Ability to recognize atmospheric corrosion

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Pressure Deviation • No Pressure • Unplanned Decrease in Pressure • Unplanned Increase in Pressure	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Activation of a Safety Device(s) other than planned testing • Emergency Shutdown • High Pressure Shutdown • High Temp. Shutdown • Pressure Relief Valve Relieving	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan, as needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **July, 2013**

Pressure Testing Covered Tasks

Knowledge, Skills and Abilities
Abnormal Operation Conditions

Task 0571 Pressure Testing – Non-liquid Medium – MAOP Greater than or equal to 100 psi

From ASME B31Q:

Includes achieving test pressure and durations, and record keeping.

(1) Identify test requirements
(2) Prepare for test
(3) Perform test (includes data analysis and check for leaks)
(4) Recognize and react to Abnormal Operating Conditions
(5) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of properties of gas
Knowledge of ignition sources
Knowledge of use and care of personal protective equipment
Knowledge of MAOP
Knowledge of utilizing inert gas for testing
Knowledge of testing requirement, i.e. level and duration
Knowledge of physical properties and material characteristics of pipe material
Skills in using and inspecting pressure gauges including verification of calibration
Skills in basic pipe fitting
Ability to identify leakage
Ability to read gas system pipeline drawings and maps

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

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Revised: July, 2013

Task 0591 Leak Test at Operating Pressure

From ASME B31Q:

Includes the detection of leaks at operating pressure either visually, (e.g. soap test), or with use of leak detection equipment.

(1) Identify requirements
(2) Prepare test and check for leaks
(3) Recognize and react to Abnormal Operating Conditions
(4) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of properties of gas
Knowledge of ignition sources
Knowledge of use and care of personal protective equipment
Ability to identify leakage
Ability to perform a soap test

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

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Pipeline Installation Covered Tasks

Knowledge, Skills and Abilities
Abnormal Operation Conditions

Task 0641 Visually Inspect Pipe and Components Prior to Installation

From ASME B31Q:

Includes the visual inspection of pipe and pipeline components, prior to installation, to identify visually determinable damage and defects.

(1) Identify requirements
(2) Prepare visual inspection
(3) Recognize and react to Abnormal Operating Conditions
(4) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of characteristics of pipeline and component materials
Knowledge of material parameters and ratings
Knowledge of damage and defects affecting material integrity
Ability to recognize corrosion or other degradations
Ability to recognize defects or damages for pipe and pipeline component

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

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Task 0861 Installation of Steel Pipe in a Ditch

From ASME B31Q:

After excavation is completed, this task includes the handling, lowering in, and fitting of steel pipe in a ditch to assure firm support.

(1) Identify requirements
(2) Handle pipe to prevent damage
(3) Visually inspect ditch
(4) Inspect pipe coating during installation – (added by SIF)
(5) Install pipe with firm support to fit ditch
(6) Recognize and react to Abnormal Operating Conditions
(7) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of excavation and shoring safety, including traffic control issues
Knowledge of the minimum requirement for depth and pipeline clearance from other structures
Knowledge of proper support of pipe including padding requirements
Knowledge of confined space entry
Knowledge of pipe coatings and inspection methods
Knowledge of proper pipe handling
Knowledge of how to protect exposed facilities and maintain markings
Ability to prevent damage to pipe and coating
Ability to inspect pipe coatings
Ability to read construction drawings

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Flow Rate Deviation • Unplanned Increase in Flow • Unplanned Decrease in Flow & or No Flow	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

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Task 0871 Installation of Steel Pipe in a Bore

From ASME B31Q:

After boring is completed, this task includes the handling, pulling in and inspection of exposed pipe and coating.

(1) Identify requirements
(2) Handle pipe to prevent damage
(3) Inspect pipe to prevent pipe damage and coating damage
(4) Inspect pipe coating during installation
(5) Recognize and react to Abnormal Operating Conditions
(6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of excavation and shoring safety, including traffic control issues
Knowledge of the minimum requirement for depth and pipeline clearance from other structures
Knowledge of proper support of pipe including padding requirements
Knowledge of pipe coatings and inspection methods
Knowledge of proper pipe handling
Knowledge of how to protect exposed facilities and maintain markings
Ability to prevent damage to pipe and coating
Ability to inspect pipe coatings
Ability to read construction drawings

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Flow Rate Deviation • Unplanned Increase in Flow • Unplanned Decrease in Flow & or No Flow	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

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Task 0951 Installation of Pipe Above Ground

From ASME B31Q:

Includes the handling and installation of pipe above ground.

(1) Identify requirements
(2) Handle pipe to prevent damage
(3) Install pipe with specified support
(4) Install to protect pipe and coating
(5) Recognize and react to Abnormal Operating Conditions
(6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of basic pipe fittings, supports, anchors and expansion joints
Knowledge of proper pipe handling
Knowledge of protective measures from outside forces
Knowledge of soil compaction and subsidence
Ability to protect pipe and/or coating from damage
Ability to read gas system pipeline drawings and maps
Ability to install bolted insulated/unbolted insulated joints, bolted flanges and fitting, clamps and other mechanical fittings
Ability to identify proper types of fittings and material

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

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Task 0961 Above Ground Supports and Anchors – Inspection, Preventive and Corrective Maintenance

From ASME B31Q:

Includes verification that the above ground supports and anchors are installed in accordance with specifications, prior to or during placing in service. This task also includes the repair or replacement, alteration, or refurbishment of above ground supports and anchors, and actions to keep the above ground supports and anchors functioning as specified.

(1) Identify requirements
(2) Visually inspect supports and anchors
(3) Perform preventive or corrective maintenance
(4) Recognize and react to Abnormal Operating Conditions
(5) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for these tasks:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of the impact of internal and external stresses
Knowledge of soil conditions and subsidence issues
Knowledge of insulated fittings
Knowledge of basic pipe fittings, supports, anchors and expansion joints
Ability to identify corrosion
Ability to read gas system pipeline drawings, specifications, and maps

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Pressure Deviation • No Pressure • Unplanned Decrease in Pressure • Unplanned Increase in Pressure	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

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Task 0971 Installation and Maintenance of Casing Spacers, Vents and Seals

From ASME B31Q:

Includes the installation of casing spacers, vents and seals. This task also includes the evaluation, repair or replacement, of casing vents and seals.

(1) Identify requirements
(2) Evaluate to determine if requirements are met
(3) Perform corrective maintenance
(4) Recognize and react to Abnormal Operating Conditions
(5) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for these tasks:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of cathodic protection
Knowledge of casing spacers, vents and seals
Knowledge of the use of insulators
Knowledge of spacing requirements
Ability to read gas system pipeline drawings, specifications, and maps

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

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Task 0981 Backfilling

From ASME B31Q:

Includes visually inspecting backfill material, installation of pipe protective material (i.e. padding, shading, and rock shield), verification of firm support and placing backfill in lifts or layers as specified.

(1) Identify requirements
(2) Visually inspect backfill material
(3) Place material to provide firm support and protect pipe
(4) Recognize and react to Abnormal Operating Conditions
(5) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of excavation and shoring safety
Knowledge of company standards for excavating equipment and backfill
Knowledge of minimum requirements for proper depth and clearance
Knowledge of appropriate and suitable backfill material
Knowledge of damage prevention requirements
Knowledge of proper support of pipe
Knowledge of tracer wire placement

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade 1 leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

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Pipeline Repair
Covered Tasks

Knowledge, Skills and Abilities
Abnormal Operation Conditions

Task 0201 Visual Inspection of Installed Pipe and Components for Mechanical Damage

From ASME B31Q:

Includes the inspection of installed pipe and components for the purpose of detecting mechanical damage (e.g. dents, gouges, cracks)

1) Identify requirements
2) Inspect protective coating
3) Inspect external surfaces of pipe and components
4) Recognize and react to AOCs
5) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Ability to recognize external corrosion

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

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Task 0711 Joining of Pipe – Compression Couplings

From ASME B31Q:

This task includes the joining of pipe greater than 2 inch with compression coupling and inspection of completed joints.

1) Identify requirements
2) Select coupling
3) Prepare pipe and fitting
4) Install coupling
5) Visually inspect completed joint
6) Recognize and react to Abnormal Operating Conditions
7) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of requirements and use for various types of compression coupling including tightening
Knowledge of basic cathodic protection principles
Knowledge of how to properly support pipeline around coupling to avoid stress or pullout
Knowledge of pipe and fitting coatings and inspection
Skill to select the most appropriate compression coupling for the application
Ability to apply the proper pipe and fitting protective coating
Ability to apply the specific torque to appropriately tighten the compression coupling

ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

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Revised: July, 2013

Task 0721 Joining of Pipe – Threaded Joints

From ASME B31Q:

This task includes the joining of threaded pipe with treaded fittings, and the inspection of completed joints.

1) Identify requirements
2) Perform joining in accordance with requirements
3) Recognize & react to Abnormal Operating Conditions
4) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of basic cathodic protection principles
Skill to recognize that pipe is properly treaded – not too long, too short, too deep etc.
Ability to apply the proper pipe wrap and protective fitting coating

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: **May, 2008**
Revised: **July, 2013**

Task 0731 Joining of Pipe – Flange Assembly

From ASME B31Q:

This task includes the assembly of flanges, bolting in sequence and torqueing.

1) Identify requirements
2) Prepare flange surface
3) Install gasket
4) Align flanges
5) Install fasteners
6) Tighten fasteners (in specified sequence to specified torque)
7) Visually inspect completed joint
8) Recognize and react to Abnormal Operating Conditions
9) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of requirements and use for various types of flanges, gaskets, and fasteners
Knowledge of required pressure ratings for materials
Knowledge of basic cathodic protection principles
Knowledge of how to properly support and align pipeline to avoid stress
Ability to apply the proper pipe and fitting protective coating
Ability to apply the specific torque, in sequence to appropriately tighten the flange

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: **May, 2008**
Revised: **July, 2013**

Task 0991 Coating Application and Repair – Brushed or Rolled

From ASME B31Q:

Includes the surface preparation and application or repair of coatings using a brush or roller. This task includes painting to inhibit corrosion, and internal or external applications of coatings, on pipes, tanks, etc.

(10) Identify requirements
(11) Prepare surface
(12) Apply coating
(13) Inspect coating
(14) Recognize and react to Abnormal Operating Conditions
(15) If required, complete documentation

Knowledge, skills, abilities and abnormal operating conditions for these tasks:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of coating material and characteristics
Knowledge of the causes of corrosion
Ability to prepare surface for coatings
Ability to apply mastic coatings
Ability to check product container label

ıbility to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **July, 2013**

Task 1001 Coating Application and Repair – Sprayed

From ASME B31Q:

This task includes the surface preparation and application or repair of coatings using a sprayer. This task includes painting to inhibit corrosion, and internal or external applications of coatings, on pipes, tanks, etc.

1) Identify requirements
2) Prepare surface
3) Apply coating
4) Inspect coating
5) Recognize and react to Abnormal Operating Conditions
6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of proper mixing and spraying techniques for various coatings
Knowledge of proper techniques for preparing the pipe to accept coating
Knowledge of the appropriate drying/curing times between applications
Skill to use spray equipment to ensure even coat and with an appropriate thickness
Skill to measure coating thickness
Ability to recognize proper coating

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: July, 2013

Task 1011 External Coating Application and Repair - Wrapped

From ASME B31Q:

Includes the surface preparation and application or repair of coatings using a wrap.

(1) Identify requirements
(2) Prepare surface
(3) Apply coating
(4) Inspect coating
(5) Recognize and react to Abnormal Operating Conditions
(6) If required, complete documentation

Knowledge, skills, abilities and abnormal operating conditions for these tasks:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of causes of corrosion
Knowledge of coating material and characteristics
Ability to prepare surface for coating
Ability to apply tape coatings

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➤ Protect life & Property ➤ Prevent accidental ignition ➤ Notify appropriate personnel ➤ Notify Fire/Emergency Responders ➤ Initiate Emergency Plan	➤ Locate source/cause of AOC ➤ Use appropriate PPE ➤ Stop gas flow ➤ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➤ Protect life & Property ➤ Prevent accidental ignition ➤ Notify appropriate personnel ➤ Notify Fire/Emergency Responders ➤ Initiate Emergency Plan	➤ Locate source/cause of AOC ➤ Use appropriate PPE ➤ Stop gas flow ➤ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➤ Protect life & Property ➤ Prevent accidental ignition ➤ Notify appropriate personnel	➤ Locate source/cause of AOC ➤ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➤ Protect life & property ➤ Notify appropriate personnel ➤ Initiate Emergency Plan as Needed	➤ Locate source/cause of AOC ➤ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➤ Protect life & property ➤ Prevent accidental ignition ➤ Notify appropriate personnel	➤ Locate source/cause of AOC ➤ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➤ Protect life & property ➤ Prevent accidental ignition	➤ Notify appropriate personnel ➤ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **July, 2013**

Task 1041 Install Mechanical Clamps and Sleeves - Bolted

From ASME B31Q:

Includes the preparation, installation and inspection of bolted mechanical clamps and sleeves.

(1) Identify requirements
(2) Select and prepare clamp or sleeve
(3) Prepare pipe for installation of clamp or sleeve
(4) Install clamp or sleeve
(5) Recognize and react to Abnormal Operating Conditions
(6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of bolted joints
Knowledge of the material properties and installation of bolt sleeves
Knowledge of properties of piping material
Knowledge of MAOP
Knowledge of the installation and repair of bolted sleeves and clamps
Knowledge of basic corrosion principles
Knowledge of proper support and alignment after repair and backfilling
Ability to install and repair bolted sleeves and clamps
Ability to recognize corrosion or graphitization

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **July, 2013**

Task 1151 Squeeze Off Steel Pipe

From ASME B31Q:

This task includes the squeeze off of steel pipe. This also includes the selection, installation and removal of squeeze off tools and monitoring pressure to assure system pressure requirements are maintained.

1) Identify requirements
2) Verify segment(s) that requires squeeze off
3) Complete notifications
4) Install squeezer
5) Squeeze pipe
6) Monitor pressure
7) Release and remove squeezer
8) Mark squeeze point on pipe
9) Recognize and react to Abnormal Operating Conditions
10) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of operation of the hydraulic squeeze off equipment being used
Knowledge that squeezed steel must be replaced and is only a temporary shut down method
Knowledge of pipeline MAOP and operating pressures
Knowledge of proper purging techniques
Skill to properly use specific squeeze off equipment to obtain seal without splitting pipe
Skill at reading pressure gauges/recorders
Ability to operate fire protection equipment effectively
Ability to lift heavy objects/operate lifting equipment

\bility to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Static Electricity	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **July, 2013**

Tapping
Covered Tasks

Knowledge, Skills and Abilities
Abnormal Operation Conditions

Task 1101 Tapping a Pipeline With a Built-In Cutter

From ASME B31Q:

Includes tapping a pipe with an installed fitting that contains a built-in cutter.

(1) Identify requirements
(2) Perform the tap
(3) Isolate the tap
(4) Recognize and react to AOCs
(5) Complete necessary documentation

Knowledge, skill, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of piping material
Knowledge of MAOP
Skills in using and inspecting pressure gauges and pressure recording charts
Skills in basic pipe fittings
Skills in operating gas valves
Ability to operate tapping/stopping equipment according to manufacturer's procedures
Ability to read gas systems pipeline drawings and maps
Ability to use fire protection equipment

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: June, 2013

Leak Investigation Covered Tasks

Knowledge, Skills and Abilities
Abnormal Operation Conditions

Task 1231 Inside Gas Leak Investigation

From ASME B31Q:

Includes the investigation of reported or discovered leaks of Operators lines inside building in relation to emergency response. This also includes initiation of precautionary actions (make safe). Repairing and proving the integrity of customer piping and lighting customer utilization equipment is not included.

(1) Identify requirements
(2) Perform test equipment check
(3) Perform leakage investigation
(4) Initiate precautionary actions
(5) Recognize and react to AOCs
(6) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment and fire protection equipment
Knowledge of gas migration
Knowledge of leak classification criteria
Knowledge and skills to perform a gas leak investigation to include understanding and usage of leak detection equipment (e.g. CGI, FI, etc.), gas in sewer, gas in duct and pinpointing.
Knowledge of make safe procedures.
Knowledge of carbon monoxide testing
Ability to conduct a bar hole leak investigation (for Outside Gas Leak Investigation)

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Pressure Deviation • Unplanned Decrease in Pressure & or No Press. • Unplanned Increase in Pressure	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Flow Rate Deviation • Unplanned Increase in Flow • Unplanned Decrease in Flow & or No Flow	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization & or Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: July, 2013

Task 1241 Outside Gas Leak Investigation

From ASME B31Q:

Includes the investigation of reported or discovered outside leaks of the Operators lines. This also includes initiation of precautionary actions (make safe).

(1) Identify requirements
(2) Perform test equipment check
(3) Perform leakage investigation
(4) Initiate precautionary actions
(5) Visually inspect area of leakage
(6) Determine leak spread
(7) Grade (classify) the leak
(8) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment and fire protection equipment
Knowledge of gas migration
Knowledge of leak classification criteria
Knowledge and skills to perform a gas leak investigation to include understanding and usage of leak detection equipment (e.g. CGI, FI, etc.), gas in sewer, gas in duct and pinpointing.
Knowledge of make safe procedures.
Knowledge of vegetation growth for leak indication
Ability to conduct a bar hole leak investigation (for Outside Gas Leak Investigation)

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Pressure Deviation • Unplanned Decrease in Pressure & or No Press. • Unplanned Increase in Pressure	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Flow Rate Deviation • Unplanned Increase in Flow • Unplanned Decrease in Flow & or No Flow	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization & or Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: July, 2013

Task 1261 Walking Gas Leakage Survey

From ASME B31Q:

Includes conducting a walking gas leak survey utilizing gas detection survey equipment, documentation, and reporting an emergency condition.

(1) Identify requirements
(2) Perform test equipment check
(3) Perform survey
(4) Recognize and react to Abnormal Operating Conditions
(5) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task: Knowledge of the properties of gas and other hydrocarbons
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of gas migration
Knowledge of documentation and requirements for reporting an emergency condition
Knowledge to recognize the presence of other underground utilities
Knowledge of leak classification criteria
Knowledge of leak detection equipment used including calibration and maintenance
Knowledge and skills to perform a gas leak survey to include understanding usage of leak detection equipment, gas in sewer, gas in duct and pinpointing
Knowledge of pipeline location
Knowledge of make safe procedures
Knowledge of visual leak indicators
Ability to use leak detection equipment
Ability to conduct a barhole leak investigation
Ability to conduct a leakage survey utilizing available openings and pinpoint leak sources
Ability to read gas system pipeline drawings and maps

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Pressure Deviation • Unplanned Decrease in Pressure & or No Press. • Unplanned Increase in Pressure	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Flow Rate Deviation • Unplanned Increase in Flow • Unplanned Decrease in Flow & or No Flow	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization & or Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: February, 2008

Damage Prevention Covered Tasks

Knowledge, Skills and Abilities
Abnormal Operation Conditions

Task 1291 Locate Underground Pipelines

From ASME B31Q:

Includes locating underground pipelines utilizing maps, records and locating equipment. It also includes placing temporary markers or markings.

(1) Identify requirements
(2) Select method for locating
(3) Perform test equipment check
(4) Visually inspect locate area
(5) Locate pipelines and place temporary marker(s)
(6) Recognize and react to AOCs
(7) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment- common
Knowledge in the use and care of electronic pipeline locating equipment
Knowledge of state laws, rules & regulations concerning underground damage prevention
Knowledge of the pipeline mark out techniques
Knowledge of how to identify the physical location of the locate request
Knowledge of how to recognize other underground utilities in the locate area
Ability to use pipe locating equipment and mark lines
Ability to read pipeline drawings and maps
Ability to recognize soil and surface conditions
Ability to locate by other means i.e. probing, measurement, pot holing

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization & or Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Revised: **May, 2013**

Task 1301 Install and Maintain Pipeline Markers

From ASME B31Q:

Includes determining the location, placing and maintaining permanent pipeline markers.

(1) Identify requirements
(2) Evaluate to determine if pipeline marker requirements are met
(3) Install or maintain line marker
(4) Recognize and react to AOCs
(5) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of regulatory requirements and company O & M plans for pipeline markers
Knowledge and ability to use electronic pipeline locating equipment
Knowledge of state laws, rules & regulations concerning damage prevention procedures
Ability to read gas system pipeline drawings and maps.

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization & or Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Improper Installation/Misalignment of Components • Improper fitting/component installation • Misalignment of fittings/components	➢ Protect life & property ➢ Prevent accidental ignition	➢ Notify appropriate personnel ➢ Make repairs/eliminate AOC

Adopted: **March, 2012**
Revised: **May, 2013**

Task 1311 Inspect Pipeline Surface Conditions – Patrol Right of Way or Easement

From ASME B31Q:

This task includes performing right of way or easement patrol (e.g. walking, flying or driving) to visually identify signs of leaks, encroachments, conditions of the right of way, or any other signs of potential impact to pipeline safety or integrity. Includes reporting an emergency condition.

1) Identify requirements
2) Perform patrol
3) Recognize and react to Abnormal Operating Conditions
4) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of gas migration
Knowledge of leak classification criteria
Knowledge of pipeline marking requirement
Skill to recognize signs of gas leak on various types of vegetation
Ability to use a combustible gas indicator
Ability to conduct a barhole leak investigation
Ability to recognize encroachment and other possible unsafe conditions along ROW
Ability to read gas system pipeline drawings and maps

Ability to recognize and react to abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization & or Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Revised: May, 2013

Task 1321 Damage Prevention During Excavation Activities by or On Behalf of the Operator

From ASME B31Q:

Includes assuring the performance of damage prevention activities during excavation activities (e.g. verifying underground pipelines are marked, providing required notifications, use of spotter/swamper to guide equipment operator, probing, hand digging, pot holing to verify location of bore-head, etc.)

(1) Identify requirements
(2) Implement damage prevention actions during excavation activities
(3) Recognize and react to AOCs
(4) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use of and care of personal protective equipment
Knowledge of the state laws, rules & regulations concerning damage prevention procedures.
Knowledge of the pipeline mark out techniques
Knowledge of the separation requirements of utilities
Knowledge of the techniques and protection for safe excavation
Ability to read pipeline drawings and maps
Ability to recognize external forces and land movement that could potentially jeopardize pipeline integrity

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization & or Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Revised: May, 2013

Task 1331 Damage Prevention Inspection During Third Party Excavation or Encroachment Activities as Determined Necessary by Operator

From ASME B31Q:

Includes inspection of damage prevention activities during third party excavation or encroachment activity (e.g. verifying underground pipelines are marked, providing required notifications, use of spotter/swamper to guide equipment operator, probing, hand digging, pot holing to verify location of bore-head, etc.)

(1) Identify requirements

(2) Perform inspection to enforce damage prevention during and after third party excavation or encroachment activities

(3) Recognize and react to AOCs

(4) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use of and care of personal protective equipment
Knowledge of the state laws, rules & regulations concerning damage prevention procedures.
Knowledge of the pipeline mark out techniques
Knowledge of the separation requirements of utilities
Knowledge of the techniques and protection for safe excavation
Ability to read pipeline drawings and maps
Ability to recognize external forces and land movement that could potentially jeopardize pipeline integrity

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization & or Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Revised: May, 2013

Task 1341 Provide or Assure Adequate Pipeline Support During Operator Initiated Excavation Activities

From ASME B31Q:

This task includes the actions necessary to provide or assure adequate pipeline support during excavation activities (e.g. installing bridging, bracing, etc.)

1) Identify requirements
2) Install bridging, bracing, or other specified support
3) Recognize and react to Abnormal Operating Conditions
4) Complete necessary documentation

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of the properties of gas
Knowledge of ignition sources
Knowledge of the use and care of personal protective equipment
Knowledge of pipe materials and limitations
Knowledge of protection techniques and materials to protect exposed pipe from damage
Ability to install adequate bridging and bracing

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan ➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Pipeline Damage • Coating Damage • Corrosion Damage • Dents, Gouges, Scrapes, etc.	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Electric Shock	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization & or Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Revised: May, 2013

Purging Covered Tasks

Knowledge, Skills and Abilities
Abnormal Operation Conditions

Task 1651 Purging – Flammable or Inert Gas

·rom ASME B31Q

Includes ensuring adequate supply of gas, obtaining correct authorizations to purge, remove or take proper precautions for handling liquids in the line, installation of proper pressure gauges, operation of appropriate valves and maintaining correct pressures in the line.

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of properties of gas
Knowledge of ignition sources
Knowledge of natural migration
Knowledge of the use and care of personal protective equipment
Knowledge of purging practices and safety
Knowledge of utilizing inert purge gas (if inert purge used)
Knowledge of special safety issues involved in blowing gas (Static charge in plastic pipe, control of ignition sources, blowing gas near structures, electric power facilities, etc.)
Ability to Control Gas Flow While Purging
Ability to Use a Combustible Gas Indicator
Skills in Operating Gas Valves
Skills in Basic Pipe Fitting (Threaded Steel)

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Pressure Deviation • Unplanned Decrease in Pressure & or No Press. • Unplanned Increase in Pressure	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Flow Rate Deviation • Unplanned Increase in Flow • Unplanned Decrease in Flow & or No Flow	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Elec. Shock (Static)	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization & or Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: March, 2012
Revised: July, 2013

Task 1701 Isolating, Abandoning and Deactivating Facilities

From ASME B31Q:

Isolate the line or facility by closing correct valves, blind flanges, or welding on end caps, purging the line and install locking devices as required.

Knowledge, skills, abilities and abnormal operating conditions for this task:

Knowledge of properties of gas
Knowledge of ignition sources
Knowledge of natural migration
Knowledge of code and O & M Plan requirements for abandonment
Knowledge of code and O & M Plan requirements for deactivation
Knowledge of code and O & M Plan requirements for isolation
Knowledge of the use and care of personal protective equipment
Knowledge of purging practices and safety
Knowledge of utilizing inert purge gas (if inert purge used)
Knowledge of special safety issues involved in blowing gas (Static charge in plastic pipe, control of ignition sources, blowing gas near structures, electric power facilities, etc.)
Ability to Control Gas Flow While Purging
Ability to Use a Combustible Gas Indicator
Skills in Operating Gas Valves
Skills in Basic Pipe Fitting (Threaded Steel)

Ability to recognize and react to the following abnormal operating conditions:

AOC Main Category & Examples of Specific AOCs	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Pressure Deviation • Unplanned Decrease in Pressure & or No Press. • Unplanned Increase in Pressure	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Flow Rate Deviation • Unplanned Increase in Flow • Unplanned Decrease in Flow & or No Flow	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/Failure of a Pipeline Component • Stray Current on a Pipeline – Elec. Shock (Static)	➢ Protect life & property ➢ Notify appropriate personnel ➢ Initiate Emergency Plan as Needed	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization & or Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

Adopted: **March, 2006**
Revised: **July, 2013**

Attachment D: Operator Qualification Management of Change Log

'er the Gas Piping Technology Committee Guidance:

In addition to communicating changes that affect covered tasks to the individuals who perform those covered tasks (including contractors), the operator should also consider communicating such changes to other individuals that may be affected by the change (e.g. evaluators, supervisors, program administrators). The change may be significant enough to require modifications to the qualification process, additional evaluation requirements, or a need to re-evaluate qualifications of any individual currently qualified for the affected tasks.

Types of Changes

1. Modifications to company policies or procedures
2. Changes in state or federal regulations
3. Use of new technology or equipment
4. New information from equipment or product manufacturers
5. Changes needed as a result of monitoring performance or program effectiveness

Level of Communication

The need to communicate changes will vary depending upon the impact of the change on the covered task. For a change that is not substantive (e.g. does not materially affect the knowledge, skills, or abilities required for a covered task), an operator may decide that communication is not necessary.

Timing of Communication

When the change needs to be implemented may also vary. The use of new equipment could be phased in if continued use of the existing equipment is adequate. This would permit the operator time to provide necessary communications and any required training or additional evaluations without disruption of operations and maintenance activities. However, communications related to changes in regulations that result in an existing non-covered operating or maintenance task ›ecoming a covered task may be more urgent since effective dates of new or revised regulations may not provide such flexibility to achieve compliance to the operator qualification requirements. In cases where the operator is aware of an impending rule change (e.g. through monitoring of regulatory projects of the regulating agency), the operator may consider some level of communication prior to the issuance of the final rule (e.g. when a notice of proposed rulemaking is issued.)

Type of Communication

The type of communication may also vary based on the impact or complexity of the change. For example, changes that have limited impact or are minor procedural changes may require a simple communication regarding the change (e.g. written or oral communication or briefing). However, changes that are more substantive may require training or an orientation session, and in some cases, may involve additional evaluations. Methods for communication may include the following:

1. Written or oral instruction
2. Individual or group meetings
3. Tailgate or pre-job briefings
4. Training sessions
5. Technical mailings

Documentation of Communication

Operators should document the communications made related to these changes, including the identification of the individuals notified using Attachment D, "Operator Qualification Management of Change Communication Log".

Notification of Significant Program Changes must be communicated to Federal/State regulatory agencies after the program has been reviewed for compliance.

Operator Qualification Management of Change Communication Log

Tracking #:		Effective Date of Change:	
Method of Communication:	Verbal: ☐ Written ☐ Demonstration ☐ Email ☐		
Affected Section(s) of Operator Qualification Plan			
Description of Change:			
Reason for Change:			

Signature of Affected Individuals	
Plan Administrator Signature	**Date:**

ATTACHMENT E: PHMSA OPERATOR QUALIFICATION PROTOCAL FORMS 14

ATTACHMENT F: PHMSA OPERATOR QUALIFICATION PROTOCOL FORM 15

Instructions (rev 12-2012) for Form PHMSA F 7100.2 (rev 12-2012)
INCIDENT REPORT – NATURAL AND OTHER GAS TRANSMISSION AND GATHERING PIPELINE SYSTEMS

GENERAL INSTRUCTIONS

Each operator of a gas transmission or gathering pipeline system shall file Form PHMSA F 7100.2 for an incident that meets the criteria in 49 CFR §191.3 as soon as practicable but not more than 30 days after detection of the incident. Requirements for submitting reports are in §191.7 and §191.15.

The intentional and controlled release of gas for the purpose of maintenance or other routine operating activities is not to be reported if the only reportable criterion is unintentional loss of gas of 3 million cubic feet or more as described in §191.3 under "Incident" (1)(iii).

Special considerations apply when a pipeline failure or release occurs involving secondary ignition. Secondary ignition is a fire where the origin of the fire is unrelated to the gas systems subject to Parts 191 or 192, such as electrical fires, arson, etc., and includes events where fire or explosion not originating from a pipeline system failure or release was the primary *cause* of the pipeline system failure or release, such as a refinery fire that subsequently resulted in – but was not caused by – a gas transmission or gas gathering pipeline system failure or release. An incident caused by secondary ignition is not to be reported unless a release of gas escaping from facilities subject to regulation under Parts 191 or 192 results in one or more of the consequences as described in §191.3 under "Incident" (1). The determination of consequences from a pipeline incident caused by secondary ignition, though, is an area of possible confusion when reporting incidents. This situation is particularly susceptible to confusion as compared to other Natural or Other Outside Force Damage because it is extremely difficult in most cases to establish whether and which consequences were attributable to the initiating fire (that is, the "secondary ignition" source itself) or to a subsequent fire due to a resulting pipeline system failure or release. PHMSA is providing the following guidance for operators to use when secondary ignition is involved (sometimes referred to as "Fire First" incidents):

- A pipeline incident attributed to secondary ignition is to be reported to PHMSA if any fatalities or injuries are involved unless it can be established with reasonable certainty that all of the casualties either preceded the pipeline system failure or release, or would have occurred whether or not the pipeline system failure or release occurred.
- A pipeline incident attributed to secondary ignition is NOT to be reported to PHMSA if the only reportable criterion is unintentional loss of gas of 3 million cubic feet or more as described in §191.3 under "Incident" (1)(iii).
- A pipeline incident attributed to secondary ignition is NOT to be reported to PHMSA unless the damage to facilities subject to Parts 191 or 192 equals or exceeds $50,000.

These considerations apply to several pipeline incident cause categories as indicated in pertinent sections of these instructions.

Form PHMSA F 7100.2 and these instructions can be found on http://phmsa.dot.gov/pipeline/library/forms. The applicable documents are listed in the section titled Accident/Incident/Annual Reporting Forms.

Instructions (rev 12-2012) for Form PHMSA F 7100.2 (rev 12-2012)
INCIDENT REPORT – NATURAL AND OTHER GAS TRANSMISSION AND GATHERING PIPELINE SYSTEMS

ONLINE REPORTING REQUIREMENTS

Incident Reports must be submitted online through the PHMSA Portal at https://portal.phmsa.dot.gov/portal, unless an alternate method is approved (see Alternate Reporting Methods below). You will not be able to submit reports until you have met all of the Portal registration requirements – see http://opsweb.phmsa.dot.gov/portal_message/PHMSA_Portal_Registration.pdf
Completing these registration requirements could take several weeks. Plan ahead and register well in advance of the report due date.

Use the following procedure for online reporting:

1. Go to the PHMSA Portal at https://portal.phmsa.dot.gov/portal
2. Enter PHMSA Portal Username and Password ; press *enter*
3. Select OPID; press "*continue*" button.
4. On the left side menu under "Incident/accident" select **"ODES 2.0"**
5. Under "**Create Reports**" on the left side of the screen, select "Gas Transmission and Gathering Incident Report" and proceed with entering your data. *Note: Data fields marked with a single asterisk are considered required fields that must be completed before the system will accept your initial submission.*
6. Click "**Submit**" when finished with your data entry to have your report uploaded to PHMSA's database as an official submission of an Incident Report; or click "**Save**" which doesn't submit the report to PHMSA but stores it in a draft status to allow you to come back to complete your data entry and report submission at a later time. *Note: The "Save" feature will allow you to start a report and save a draft of it which you can print out and/or save as a PDF to email to colleagues in order to gather additional information and then come back to accurately complete your data entry before submitting it to PHMSA.*
7. Once you click "**Submit**", the system will return you to the initial view of the screen that lists your [Saved Incident/Accident Reports] in the top portion of the screen and your [Submitted Incident/Accident Reports] in the bottom portion of the screen. *Note: To confirm that your report was successfully submitted to PHMSA, look for it in the bottom portion of the screen where you can also view a PDF of what you submitted.*

Supplemental Report Filing – Follow Steps 1 through 4 above, and then select a previously submitted report from the [Submitted Incident/Accident Reports] list in the bottom portion of the screen by double clicking on the desired report. The report will default to a "Read Only" mode that is pre-populated with the data you entered previously. To create a Supplemental Report, click on "Create Supplemental" found in the upper right corner of the screen. At this point, you can amend your data and make an official submission of the report to PHMSA as either a

Supplemental Report or as a Supplemental Report *plus* Final Report (see "Specific Instructions, PART A, Report Type"), or you can use the "**Save**" feature to create a draft of your Supplemental Report to be submitted at some future date. Reports that were saved will appear in the [Saved Incident/Accident Reports] list in the top portion of the screen and reports that were submitted will appear in the [Submitted Incident/Accident Reports] list in the bottom portion of the screen.

Alternate Reporting Methods

Operators for whom electronic reporting imposes an undue burden and hardship may submit a written request for an alternate reporting method. Operators must follow the requirements in §191.7(d) to request an alternate reporting method and must comply with any conditions imposed as part of PHMSA's approval of an alternate reporting method.

RETRACTING A 30-DAY WRITTEN REPORT

An operator who reports an incident in accordance with §191.15 (oftentimes referred to as a 30-day written report) and upon subsequent investigation determines that the event did not meet the criteria in §191.3 may request that the report be retracted. Requests to retract a 30-day written report are to be emailed to InformationResourcesManager@dot.gov. Requests are to include the following information:

a. The Report ID (the unique 8-digit identifier assigned by PHMSA)
b. Operator name
c. PHMSA-issued OPID number
d. The number assigned by the National Response Center (NRC) when an immediate notice was made in accordance with §191.5. If Supplemental Reports were made to the NRC for the event, list all NRC report numbers associated with the event.
e. Date of the event
f. Location of the event
g. A brief statement as to why the report should be retracted.

Note: PHMSA no longer requests that operators rescind erroneously reported "Immediate Notices" filed with the NRC in accordance with §191.5 (oftentimes referred to as "Telephonic Reports").

Instructions (rev 12-2012) for Form PHMSA F 7100.2 (rev 12-2012)
INCIDENT REPORT – NATURAL AND OTHER GAS TRANSMISSION
AND GATHERING PIPELINE SYSTEMS

SPECIAL INSTRUCTIONS

Certain data fields must be completed before an Original Report will be accepted. The data fields that must be completed for an Original Report to be accepted are indicated on the online form. Your Original Report will not be able to be submitted online until the required information has been provided, although your partially completed form can be saved online so that you can return at a later time to provide the missing information.

1. An entry should be made in each applicable space or check box, unless otherwise directed by the section instructions.

2. If the data is unavailable, enter "Unknown" for text fields and leave numeric fields and fields using check boxes or "radio" buttons blank.

3. Estimate data only if necessary. Provide an estimate in lieu of answering a question with "Unknown" or leaving the field blank. Estimates should be based on best-available information and reasonable effort.

4. For unknown or estimated data entries, the operator should file a Supplemental Report when additional or more accurate information becomes available.

5. If the question is not applicable, enter "N/A" for text fields and leave numeric fields and fields using check boxes or "radio" buttons blank. Do not enter zero unless this is the actual value being submitted for the data in question.

6. For questions requiring numeric answers, all preceding and/or unused data fields should be filled in using zeroes. When decimal points or commas are required and not already shown in the data field, **the decimal point or comma should be placed in a separate block** in the data field.

   Examples:

(PART C, Question 3.a), Nominal diameter of pipe (in):	/0/0/2/4/	(24 inches)
	/3/./5/	(3.5 inches)
(PART C, Question 3.b), Wall thickness (in)	/0/./3/1/2/	(0.312 inches)
(PART C, Question 3.c), SMYS	/0/5/2/,/0/0/0/	(52,000 psi)

7. If **OTHER** is checked for any answer to a question, include an explanation or description on the line provided, making it clear why "Other" was the necessary selection.

8. Pay close attention to each question for the phrase:
   a. ***(select all that apply)***
   b. ***(select only one)***

   If the phrase is not provided for a given question, then "select only one" should apply. "Select only one" means that you should select the single, primary, or most applicable answer. DO NOT SELECT MORE ANSWERS THAN REQUESTED. "Select all that apply" requires that all applicable answers (one or more than one) be selected.

9. **Date format** = mm/dd/yy or for year = /yyyy/

10. **Time format:** All times are reported as a 24-hour clock:

    Time format Examples:

    a. (0000) = midnight = /0/0/0/0/
    b. (0800) = 8:00 a.m. = /0/8/0/0/
    c. (1200) = Noon = /1/2/0/0/
    d. (1715) = 5:15 p.m. = /1/7/1/5/
    e. (2200) = 10:00 p.m. = /2/2/0/0/

    Local time always refers to time at the site of the incident. Note that time zones at the incident site may be different than the time zone for the person discovering or reporting the event. For example, if a release occurs at an gas transmission facility in Denver, Colorado at 2:00 pm MST, but an individual located in Houston is filing the report after having been notified at 3:00 pm CST, the time of the incident is to be reported as 1400 hours based on the time in Denver, which is the physical site of the incident.

PART A – KEY REPORT INFORMATION

Report Type: *(select all that apply)*

Select the appropriate report box or boxes to indicate the type of report being filed. Depending on the descriptions below, the following combinations of boxes – and only one of these combinations - may be selected:

- Original Report only
- Original Report *plus* Final Report
- Supplemental Report only
- Supplemental Report *plus* Final Report

☐ **Original Report**

Select if this is the FIRST report filed for this incident and you expect that additional or updated information will be provided later.

☐ **Original Report** *plus* ☐ **Final Report**

Select **both** Original Report and Final Report if ALL of the information requested is known and can be provided at the time the initial report is filed, including final property damage costs and apparent failure cause information. If new, updated, and/or corrected information becomes available, you are still able to file a Supplemental Report.

Instructions (rev 12-2012) for Form PHMSA F 7100.2 (rev 12-2012)
INCIDENT REPORT – NATURAL AND OTHER GAS TRANSMISSION
AND GATHERING PIPELINE SYSTEMS

☐ **Supplemental Report**

Select only if you have already filed an Original Report AND you are now providing new, updated, and/or corrected information. Multiple Supplemental Reports are to be submitted, as necessary, in order to provide new, updated, and/or corrected information ***when it becomes available*** and, per §191.15(c), each Supplemental Report containing new, updated, and/or corrected information is to be filed as soon as practicable. Submission of new, updated, and/or corrected information is NOT to be delayed in order to accumulate "enough" to "warrant" a Supplemental Report, or to complete a Final Report. ***Supplemental Reports must be filed as soon as practicable following the Operator's awareness of new, updated, and/or corrected information.*** Failure to comply with these requirements can result in enforcement actions, including the assessment of civil penalties not to exceed $100,000 for each violation for each day that such violation persists up to a maximum of $1,000,000.

For Supplemental Reports filed online, all data previously submitted will automatically populate in the form. Page through the form to make edits and additions where needed.

☐ **Supplemental Report** *plus* ☐ **Final Report**

If an Original Report has already been filed AND new, updated, and/or corrected information is now being submitted via a Supplemental Report AND the operator is reasonably certain that no further information will be forthcoming, then Final Report is to also be selected along with Supplemental Report. If you subsequently find that new, updated, and/or corrected information needs to be provided, submit another Supplemental Report.

In PART A, answer Questions 1 thru 19 by providing the requested information or by making the appropriate selection.

1. Operator's OPS -Issued Operator Identification Number (OPID)

For online entries, the OPID will automatically populate based on the selection you made when entering the Portal. If you have log-in credentials for multiple OPID, be sure the report is being created for the appropriate OPID. Contact PHMSA's Information Resources Manager at 202-366-8075 if you need assistance with an OPID. Business hours are 8:30 AM to 5:00 PM Eastern Time.

2. Name of Operator

This is the company name associated with the OPID. For online entries, the name will automatically populate based on the OPID entered in A1. If the name that appears is not correct, you need to submit an Operator Name Change (Type A) Notification.

3. Address of Operator

For online entries, the headquarters address will automatically populate based on the OPID entered in A1. If the address that appears is not correct, you need to change it in the online Contacts module.

4. Local time (24-hour clock) and date of the Incident

Enter the earliest local date/time a reporting criteria was met. In some cases, this date/time must be estimated based on information gathered during the investigation.

See "Special Instructions", numbers 9 and 10 for examples of **Date format** and **Time format** expressed as a 24-hour clock.

5. Location of Incident

The latitude and longitude of the incident are to be reported as Decimal Degrees with a minimum of 5 decimal places (e.g. Lat: 38.89664 Long: -77.04327), using the NAD83 or WGS84 datums.

If you have coordinates in degrees/minutes or degrees/minutes/seconds, use the formula below to convert to decimal degrees:

> degrees + (minutes/60) + (seconds/3600) = decimal degrees
> e.g. 38° 53' 47.904" = 38 + (53/60) + (47.904/3600) = 38.89664°

All locations in the United States will have a negative longitude coordinate, **which has already been included on the data entry form so that operators <u>do not</u> have to enter the negative sign.**

If you cannot locate the incident with a GPS or some other means, there are online tools that may assist you at http://www.getlatlon.com/ or http://viewer.nationalmap.gov/viewer/. Any questions regarding the required format, conversion, or how to use the tools noted above can be directed to Amy Nelson (202-493-0591 or amy.nelson@dot.gov).

6. National Response Center (NRC) Report Number

§191.5 requires that incidents meeting the criteria outlined in §191.3 be reported directly to the **24-hour National Response Center (NRC) at 1-800-424-8802** at the earliest practicable moment (generally within 2 hours). The NRC assigns numbers to each call. The number assigned to that Immediate Notice (sometimes referred to as the "Telephonic Report") is to be entered in Question 6.

7. Local time (24-hr clock) and date of initial telephonic report to the National Response Center

Enter the time and date of the Immediate Notice of the incident to the NRC. The time is to be shown by 24-hour clock notation in the time zone where the incident occurred. All NRC reports are time stamped for the eastern time zone. Be sure to convert to local time if the incident did not occur in the eastern time zone. (See "Special Instructions", numbers 9 and 10.)

8. Incident resulted from

Indicate whether the incident resulted from the intentional or unintentional release of gas or for reasons other than a release of gas.

9. Gas released

Select the type of gas released. Examples of **Synthetic Gas** include landfill gas, biogas, and manufactured gas based on naphtha.

Important Note for Questions 10, 12, and 12: Volumes consumed by fire and/or explosion are to be included in the estimated volumes reported.

10. Estimated volume of gas released unintentionally

Estimate the amount of gas that was released (in thousands of standard cubic feet, MCF) from the beginning of the incident until such time as gas is no longer being released from the pipeline system or until intentional and controlled blowdown has commenced. Estimates are to be based on best-available information.

11. Estimated volume of intentional and controlled release/blowdown

Estimate the amount of gas that was released (in thousands of standard cubic feet, MCF) during any intentional release or controlled blowdown conducted as part of responding to or recovering from the incident. Intentional and controlled blowdown implies a level of control of the site and situation by the operator such that the area and the public are protected during the controlled release.

12. Estimated volume of accompanying liquid released

Estimate the amount of accompanying liquid that was spilled to the ground (or other containment) as a liquid (in barrels) from the beginning of the incident until such time as the liquid is no longer being released from the system. Barrel means a unit of measurement equal to 42 U.S. standard gallons. If less than 1 barrel, report to 1 decimal place using the conversion table below. De minimus volumes, including but not limited to those which sometimes result in some form of ignition, are to be reported as 0.1 barrels.

If estimated volume is	Report	If estimated volume is	Report
<5 gallons	**0.1** barrels	24-27 gallons	**0.6** barrels
5-10 gallons	**0.2** barrels	28-31 gallons	**0.7** barrels
11-14 gallons	**0.3** barrels	32-35 gallons	**0.8** barrels
15-18 gallons	**0.4** barrels	36-39 gallons	**0.9** barrels
19-23 gallons	**0.5** barrels	40-42 gallons	**1.0** barrels

13. Were there fatalities?

If a person dies at the time of the incident or within 30 days of the initial incident date due to injuries sustained as a result of the incident, report as a fatality. If a person dies subsequent to an injury more than 30 days past the incident date, report as an injury. (Note: This aligns with the Department of Transportation's general guidelines for all jurisdictional transportation modes for reporting deaths and injuries.)

Contractor employees working for the operator are individuals hired to work for or on behalf of the operator of the pipeline. These individuals are not to be reported as "Operator employees".

Non-Operator emergency responders are individuals responding to render professional aid at the incident scene, including on-duty and volunteer fire fighters, rescue workers, EMTs, police officers, etc. "Good Samaritans" that stop to assist are to be reported as "General public."

Workers Working on the Right-of-Way, but NOT Associated with this Operator means people authorized to work in or near the right-of-way, but not hired by or working on behalf of the operator of the pipeline. This includes all work conducted within the right-of-way including work associated with other underground facilities sharing the right-of-way, building/road construction in or across the right-of-way, or farming. This category most often includes employees of other pipelines or underground facilities operators, or their contractors, working in or near a shared right-of-way. Workers performing work near, but not on, the right-of-way and who are affected are to be reported as "General public".

14. Were there injuries requiring inpatient hospitalization?

Injuries requiring inpatient hospitalization are injuries sustained as a result of the incident and that require both hospital admission *and* at least one overnight stay.

See Question 13 for additional definitions that apply.

15. Was the pipeline/facility shut down due to the Incident?

Report any shutdowns that occur as a result of the incident, including but not limited to those required for damage assessment, temporary repair, permanent repair, and clean-up.

If No is selected, explain the reason that no shutdown was needed in the space provided.

If Yes is selected, complete Questions 15.a and 15.b.

15.a. Local time (24hr clock) and date of shutdown
15.b. Local time pipeline/facility restarted

The time is to be shown by 24-hour clock notation, and is to reflect the time in the time zone where the incident was physically located. (See "Special Instructions", numbers 9 and 10.) Enter the time and date the pipeline was isolated or equipment stopped in 15.a. The affected facilities may still contain gas at this time. Enter the time and date of restart in 15.b. The intent with this data is to capture the total time that the pipeline or facility is shutdown due to the incident. If the pipeline or facility has not been restarted, select "Still shut down" for Question 15.b and then include the restart time and date in a future Supplemental Report.

16. Did the gas ignite?

Ignite means the released gas caught fire.

17. Did the gas explode?

Explode means the ignition of the released gas occurred with a sudden and violent release of energy.

18. Number of general public evacuated

The number of people evacuated is to be estimated based on operator knowledge, or police, fire department, or other emergency responder reports. If there was no evacuation involving the general public, report zero (0). If an estimate is not possible for some reason, leave the field blank but include an explanation of why it was not possible to provide a number in PART H – Narrative Description of the Incident.

19. Time sequence (use local time, 24-hour clock)

In 19a, enter the date/time the operator became aware of the incident, NOT when the operator determined that the incident met the reporting criteria of §191.3. In 19b, enter the date/time operator responders, company or contract, arrived on site. The time is to be shown by 24-hour clock notation and reported in the time zone where the incident occurred. (See "Special Instructions", numbers 9 and 10.)

PART B – ADDITIONAL LOCATION INFORMATION

1. Was the origin of the incident onshore?

Answer Yes or No as appropriate and complete only the designated questions.

If Onshore

2. – 5. Incident Location

Provide the state, zip code, city, and county/parish in which the incident occurred.

6. Operator-designated location

This is intended to be the designation that the operator would use to identify the location of the incident on its pipeline system. Enter the appropriate milepost/valve station or survey station number. This designator is intended to allow PHMSA personnel to both return to the physical location of the incident using the operator's own maps and identification systems as well as to identify the "paper" location of the incident when reviewing operator maps and records.

7. Pipeline/Facility name

Multiple pipeline systems and/or facilities are often operated by a single operator. This information identifies the particular pipeline system or pipeline facility name commonly used by the operator on which the incident occurred, for example, the "West Line 24" Pipeline", or "Gulf Coast Pipeline", or "Wooster Storage Facility".

8. Segment name/ID

Within a given pipeline system and/or facility, there are typically multiple segment or station identifiers, names, or ID's which are commonly used by the operator. The information to be reported here helps locate and/or record the more precise incident location, for example, "Segment 4-32", or "MP 4.5 to Wayne County Line", or "Dublin Compressor Station", or "Witte Reducing Station".

9. Was the Incident on Federal Lands other than the Outer Continental Shelf?

Federal Lands other than Outer Continental Shelf means all lands the United States owns, including military reservations, except lands in National Parks and lands held in trust for Native Americans. Incidents at Federal buildings, such as Federal Court Houses, Custom Houses, and other Federal office buildings and warehouses, are NOT to be reported as being on Federal Lands.

10. Location of Incident

Operator-controlled Property would normally apply to an operator's facility, which may or may not have controlled access, but which is often fenced or otherwise marked with discernible boundaries. This "operator-controlled property" does not refer to the pipeline right-of-way, which is a separate choice for this question.

11. Area of Incident (as found)

This refers to the location on the pipeline system at which gas was released, resulting in the incident. It does not refer to adjacent locations in which released gas may have accumulated or ignited.

Underground means pipe, components, or other facilities installed below the natural ground level, road bed, or below the underwater natural bottom.

Under pavement includes under streets, sidewalks, paved roads, driveways, and parking lots.

Exposed due to Excavation means that a normally buried pipeline had been exposed by any party (operator, operator's contractor, or third party) preparatory to or as a result of excavation. The cause of the release, however, may or may not necessarily be related to excavation damage. This category could include a corrosion leak not previously evidenced by stained vegetation, but found during an ILI dig, or a release caused by a non-excavation vehicle where contact happened to occur while the pipeline was exposed for a repair or examination. Natural forces might also damage a pipeline that happened to be temporarily exposed. In each case, the cause is to be appropriately reported in PART G of this form.

Aboveground means pipe, components, or other facilities that are above the natural grade.

Typical aboveground facility piping includes any pipe or components installed aboveground such as those at compressor stations, valve sites, and reducing stations.

Transition area means the junction of differing material or media between pipes, components, or facilities such as those installed at a belowground-aboveground junction (soil/air interface), another environmental interface, or in close contact to supporting elements such as those at water crossings, compressor stations, and gas storage facilities.

12. Did Incident occur in a crossing?

Use **Bridge Crossing** if the pipeline is suspended above a body of water or roadway, railroad right-of-way, etc. either on a separately designed pipeline bridge or as a part of or connected to a road, railroad, or passenger bridge.

Use **Railroad Crossing** or **Road Crossing**, as appropriate, if the pipeline is buried beneath rail bed or road bed.

Use **Water Crossing** if the pipeline is in the water, beneath the water, in contact with the natural ground of the lake bed, etc., or buried beneath the bed of a lake, reservoir, stream or creek, whether the crossing happens to be flowing water at the time of the incident or not. The name of the body of water is to be provided if it is commonly known and understood among the local population. (The purpose of this information is to allow persons familiar with the area in which the incident occurred to identify the location and understand it in its local context. Research to identify names that are not commonly used is not necessary since such names would not fulfill the intended purpose. If a body of water does not have a name that is commonly used and understood in the local area, this field may be left blank).

For **Approximate water depth (ft)** of the lake, reservoir, etc., estimate the typical water depth at the location and time of the incident, ignoring seasonal, weather-related, and other factors which may affect the water depth from time to time.

<u>If Offshore</u>

13. Approximate water depth (ft.) at the point of the Incident

This is to be the estimated depth from the surface of the water to the seabed at the point of the incident regardless of whether the pipeline is below/on the bottom, underwater but suspended above the bottom, or above the surface (e.g., on a platform).

14. Origin of the Incident

Area and Tract/Block numbers are to be provided for either State or OCS waters, whichever is applicable.

For Nearest County/Parish, as with the name of an onshore body of water (see Question 12 above), the data collected is intended to allow persons familiar with the area in which the incident occurred to identify the location and understand it in its local context. Accordingly, it is not necessary to take measurements to determine which county/parish is precisely "nearest" in cases where the incident location is approximately equidistant from two (or more). In such cases, the name of one of the nearby counties/parishes is to be provided.

PART C – ADDITIONAL FACILITY INFORMATION

1. Is the pipeline or facility [Interstate or Intrastate]?

Interstate gas pipeline facility means a gas pipeline facility or that part of a gas pipeline facility that is used to transport gas and is subject to the jurisdiction of the Federal Energy Regulatory Commission (FERC) under the Natural Gas Act (15 U.S.C. 717 et seq.).

Intrastate gas pipeline facility means a gas pipeline facility or that part of a gas pipeline facility that is used to transport gas within a state and is not subject to the jurisdiction of FERC under the Natural Gas Act (15 U.S.C. 717 et seq.).

3. Item involved in Incident

Pipe (whether pipe body or pipe seam) means the pipe through which product is transported, not including auxiliary piping, tubing, or instrumentation.

Nominal diameter of pipe is also called **Nominal pipe size.** It is the diameter in whole number inches (except for pipe less than 4") used to describe the pipe size; for example, 8-5/8 pipe has a nominal pipe size of 8". Decimals are unnecessary for this measure (except for pipe less than 4").

Enter **pipe wall thickness** in inches. Wall thickness is typically less than an inch, and is standard among different pipeline types and manufacturers. Accordingly, use three decimal places to report wall thickness: 0.312, 0.281, etc.

SMYS means specified minimum yield strength and is the yield strength prescribed by the specification under which the material is purchased from the manufacturer.

Pipe Specification is the specification to which the pipe was manufactured, such as API 5L or ASTM A106.

Pipe seam means the longitudinal seam (longitudinal weld) created during manufacture of the joint of pipe.

Pipe Seam Type Abbreviations

SAW means submerged arc weld
ERW means electric-resistance weld
DSAW means double submerged arc weld

Auxiliary piping means piping, usually small in diameter, that supports the operation of the mainline or facility piping, but does not include tubing. Examples of auxiliary piping include discharge and drain lines, etc.

If the incident occurred on an item not provided in this section, select "Other" and specify the item that failed in the space provided.

6. Type of Incident involved ***(select only one)***

Mechanical puncture means a puncture of the pipeline, typically by a piece of equipment such as would occur if the pipeline were pierced by directional drilling or a backhoe bucket tooth. Not all excavation-related damage will be a "mechanical puncture." (Precise measurement of size – e.g., using a micrometer – is not needed. Approximate measurements can be provided in inches and one decimal.)

Leak means a failure resulting in an unintentional release of gas that is often small in size, usually resulting in a low flow release of low volume, although large volume leaks can and do occur on occasion.

Rupture means the pipeline facility has burst, split, or broken and the operation of the pipeline facility is immediately impaired. Pipeline ruptures often result in a higher flow release of larger volume. The terms "circumferential" and "longitudinal" refer to the general direction or orientation of the rupture relative the pipe's axis. They do not exclusively refer to a failure involving a circumferential weld such as a girth weld, or to a failure involving a longitudinal weld such as a pipe seam. (Precise measurement of size – e.g., micrometer – is not needed. Approximate measurements can be provided in inches and decimals.)

PART D – ADDITIONAL CONSEQUENCE INFORMATION

§ 192.903 What definitions apply to this subpart?

* * * * *

High consequence area means an area established by one of the methods described in paragraphs (1) or (2) as follows:

(1) An area defined as–

(i) A Class 3 location under Sec. 192.5; or

(ii) A Class 4 location under Sec. 192.5; or

(iii) Any area in a Class 1 or Class 2 location where the potential impact radius is greater than 660 feet (200 meters), and the area within a potential impact circle contains 20 or more buildings intended for human occupancy; or

(iv) Any area in a Class 1 or Class 2 location where the potential impact circle contains an identified site.

(2) The area within a potential impact circle containing–

(i) 20 or more buildings intended for human occupancy, unless the exception in paragraph (4) applies; or

(ii) An identified site.

(3) Where a potential impact circle is calculated under either method (1) or (2) to establish a high consequence area, the length of the high consequence area extends axially along the length of the pipeline from the outermost edge of the first potential impact circle that contains either an identified site or 20 or more buildings intended for human occupancy to the outermost edge of the last contiguous potential impact circle that contains either an identified site or 20 or more buildings intended for human occupancy. (See figure E.I.A. in appendix E.)

* * * * *

2. Did this Incident occur in a High Consequence Area (HCA)?

This question is to be answered based on the classification of the involved segment in the operator's Integrity Management (IM) Program at the time of the incident.

2.a. Specify the Method used to identify the HCA:

Answer this question only if the incident occurred in an HCA.

As defined in §192.903, HCAs are determined by one of two methods: Method (1) uses class locations, and Method (2) uses potential impact circles. The operator is to identify the method used within its IM program to determine that the location at which the incident occurred was an HCA.

3. What is the PIR (Potential Impact Radius) for the location of this Incident?

An operator is to answer this question for all incidents, *regardless of whether or not the incident occurred in a high consequence area (HCA) or of the method used to identify an HCA.* A PIR is one of the two methods for identifying an HCA, and this question and those immediately following are intended to collect data from actual incidents as part of a continuing effort to assure that the definition of a PIR is appropriate for that purpose.

PIR is defined in §191.903 as the radius of a circle within which the potential failure of a pipeline could have significant impact on people or property. PIR is determined by the formula:

$$r = 0.69 * \sqrt{p * d^2}$$

where: r is the radius of a circular area in feet surrounding the point of failure,
p is the maximum allowable operating pressure (MAOP) in the pipeline segment in pounds per square inch and
d is the nominal diameter of the pipeline in inches.

[0.69 is the factor for natural gas. This number will vary for other gases depending upon their heat of combustion. An operator transporting gas other than natural gas must use Section 3.2 of ASME/ANSI B31.8S-2001 (Supplement to ASME B31.8; incorporated into the regulations by reference, see §192.7) to calculate the impact radius formula.]

4. Were any structures outside the PIR impacted or otherwise damaged by heat/fire resulting from the Incident?

Report any damage to structures further from the point of failure than the PIR distance that resulted from heat radiation or fires started as a result of the incident.

5. Were any structures outside the PIR impacted or otherwise damaged NOT due to heat/fire resulting from the Incident?

This would include damage by blast effects, impact from flying debris dislodged by a pipeline rupture, etc.

6. Were any of the fatalities or injuries reported for persons located outside the PIR?

This refers to the fatalities and injuries reported in PART A, Questions 13 and 14.

7. Estimated Property Damage

All relevant costs available at the time of submission must be included on the initial written Incident Report as well as being updated as needed on Supplemental Reports. This includes (but is not limited to) costs due to property damage to the operator's facilities and to the property of others, facility repair and replacement, and environmental cleanup and damage. Do NOT include cost of gas lost. Additionally, do NOT include costs incurred for facility repair, replacement, or changes that are NOT related to the incident and which are typically done solely for convenience. An example of doing work solely for convenience is working on non-leaking facilities unearthed because of the incident. Litigation and other legal expenses related to the incident are not reportable.

Operators are to report costs based on the best estimate available at the time a report is submitted. It is likely that an estimate of final repair costs may not be available when the initial report must be submitted (within 30 days, per §191.15). The best available estimate of these costs is to be included in the initial report. For convenience, this estimate can be revised, if needed, when Supplemental Reports are filed for other reasons, however, when no other changes are forthcoming, Supplemental Reports are to be filed as new cost information becomes available. If Supplemental Reports are not submitted for other reasons, a Supplemental Report is to be filed for the purpose of updating or correcting the estimated cost if these costs differ from those already reported by 20 percent or $20,000, whichever is greater.

Public and Non-operator private property damage estimates generally include physical damage to the property of others, the cost of investigation and remediation of a site not owned or operated by the operator, laboratory costs, third party expenses such as engineers or scientists, and other reasonable costs, excluding litigation and other legal expenses related to the incident.

Operator's property damage estimates generally include physical damage to the property of the operator or owner company such as the estimated installed or replacement value of the damaged pipe, coating, component, materials, or equipment due to the incident, excluding the cost of any gas lost. Also to be excluded are litigation and other legal expenses related to the incident.

When estimating the **Cost of repairs** to company facilities, the standard shall be the cost necessary to safely restore property to its predefined level of service. Property damage estimates include the cost to access, excavate, and repair the pipeline using methods, materials, and labor necessary to re-establish operations at a predetermined level. These costs may include the cost of repair sleeves or clamps, re-routing of piping, or the removal from service of an appurtenance or pipeline component. When more comprehensive repairs or improvements are justified but not required for continued operation, the cost of such repairs or replacement is not attributable to the incident. Costs associated with improvements to the pipeline or other facilities to mitigate the risk of future failures are not included.

Estimated cost of **Operator's emergency response** includes emergency response operations necessary to return the incident site to a safe state, actions to minimize the volume of gas released, conduct reconnaissance, and to identify the extent of incident impacts. They include materials, supplies, labor, and benefits. Costs related to stakeholder outreach, media response, etc. are not to be included.

Other costs are to include any and all costs which are not included above. Cost of any gas lost is NOT to be reported here, but is to be reported under **Cost of Gas Released.** Operators are to NOT use this category to report any costs which belong in cost categories separately listed above.

Costs are to be reported in only one category and are not to be double-counted. Costs can be split between two or more categories when they overlap more than one reporting category.

Cost of Gas Released

Cost of gas released unintentionally is to be based on the volume reported in PART A, Question 10.

Cost of gas released during intentional and controlled blowdown is to be based on the volume reported in PART A, Question 11.

PART E – ADDITIONAL OPERATING INFORMATION

4. Not including pressure reductions required by PHMSA regulations (such as for repairs and pipe movement), was the system or facility relating to the Incident operating under an established pressure restriction with pressure limits below those normally allowed by the MAOP ?

Consider both voluntary and mandated pressure restrictions. A pressure restriction is to be considered mandated by PHMSA or a state regulator if it was directed by an order or other formal correspondence. Pressure reductions imposed by the operator as a result of regulatory requirements, e.g., a pressure reduction taken because an anomaly identified during an IM assessment could not be repaired within the required schedule (§192.933(d)), is not to be considered mandated by PHMSA.

5.a. Type of upstream valve used to initially isolate release source

Identify the type of valve used to initially isolate the release on the upstream side. In general, this will be the first upstream valve selected by the operator to minimize the release volume but may not be the closest to the incident site or the one that was eventually used for the final isolation of the release site for repair.

5.b. Type of downstream valve used to initially isolate release source

Identify the type of valve used to initially isolate the release on the downstream side. In general, this will be the first downstream valve selected by the operator to minimize the release volume but may not be the closest to the incident site or the one that was eventually used for the final isolation of the release site for repair.

5.c. Length of segment isolated between valves (ft)

Identify the length in feet between the valves identified in Questions 5.a and 5.b that were initially used to isolate the incident area.

5.f. Function of pipeline system

Transmission System means pipelines that are part of a system whose principal purpose is transmission of gas.

Transmission Line of Distribution System means a pipeline that meets the definition of "transmission line" in §192.3 but which is operated as part of a distribution pipeline system. Typically, this includes portions of the distribution pipeline system for which the operating stress level exceeds 20 percent SMYS.

Type A and Type B Gathering means a pipeline that transports gas from a current production facility to a transmission line or main and that meets the criteria for either Type A or Type B in §192.8.

Offshore Gathering means a gas gathering pipeline located offshore.

Storage Gathering means a transmission pipeline that transports gas within a storage field.

6. Was a Supervisory Control and Data Acquisition (SCADA)-based system in place on the pipeline or facility involved in the Incident?

This does not mean a system designed or used exclusively for leak detection.

6.a. Was it operating at the time of the Incident?

Was the SCADA system in operation at the time of the incident?

6.b. Was it fully functional at the time of the Incident?

Was the SCADA system capable of performing all of its functions, whether or not it was actually in operation at the time of the incident? If No, describe functions that were not operational in PART H – Narrative Description of the Incident.

6.c and d. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume or pack calculations) assist with the detection or confirmation of the Incident?

Select Yes if SCADA-based information was used to confirm the incident even if the initial report or identification may have come from other sources. Use of SCADA data for subsequent estimation of amount of gas lost, etc. is not considered use to confirm the incident.

Select No if SCADA-based information was not used to assist with identification of the incident.

7. How was the Incident initially identified for the Operator? ***(select only one)***

Controller means a qualified individual whose function within a shift is to remotely monitor and/or control the operations of entire or multiple sections of pipeline systems via a SCADA system from a pipeline control room, and who has operational authority and accountability for the daily remote operational functions of pipeline systems.

Local Operating Personnel including contractors means employees or contractors working on behalf of the operator outside the control room.

8. Was an investigation initiated into whether or not the controller(s) or control room issues were the cause of or a contributing factor to the Incident?

Select only one of the choices to indicate whether an investigation was/is being conducted (Yes) or was not conducted (No). If an investigation has been completed, select all the factors that apply in describing the results of the investigation.

Cause means an action or lack of action that directly led to or resulted in the pipeline incident.

Contributing factor means an action or lack of action that when added to the existing pipeline circumstances heightened the likelihood of the release or added to the impact of the release.

Controller Error means that the controller failed to identify a circumstance indicative of a release event, such as an abnormal operating condition, alarm, pressure drop, change in flow rate, or other similar event.

Incorrect Controller action means that the controller errantly operated the means for controlling an event. Examples include opening or closing the wrong valve, or hitting the wrong switch or button.

PART F – DRUG & ALCOHOL TESTING INFORMATION

Requirements for post-incident drug and alcohol tests are in 49 CFR §199.105 and §199.225 respectively. If the incident circumstances were such that tests were not required by these regulations, and if no tests were conducted, select No. If tests were administered, select Yes and report separately the number of operator employees and the number of contractors working for the operator who were tested and the number of each that failed such tests.

PART G – APPARENT CAUSE

PART G – Apparent Cause

Select the one, single sub-cause listed under sections G1 thru G8 that best describes the apparent cause of the Incident. These sub-causes are contained in the shaded column on the left under each main cause category. Answer the corresponding questions that accompany your selected sub-cause, and describe any secondary, contributing, or root causes of the Incident in PART H – Narrative Description of the Incident.

G1 – Corrosion Failure

Corrosion includes a release or failure caused by galvanic, atmospheric, stray current, microbiological, or other corrosive action. A corrosion release or failure is not limited to a hole in the pipe or other piece of equipment. If the bonnet or packing gland on a valve or flange on piping deteriorates or becomes loose and leaks due to corrosion and failure of bolts, it is to be classified as Corrosion. (Note: If the bonnet, packing, or other gasket has deteriorated to failure, whether before or after the end of its expected life, but not due to corrosive action, it is to be classified under G6 - Equipment Failure.)

External Corrosion

4.a. Under cathodic protection means cathodic protection in accordance with §192.455, §192.457, and §192.463. Recognizing that older pipelines may have had cathodic protection added over a number of years, provide an estimate if the exact year cathodic protection started is unknown.

4.b. Type of corrosion – Stress Corrosion Cracking (SCC) is no longer an option for the type of corrosion. SCC failures are to be reported under cause G5, with a sub-cause of Environmental Cracking-related.

Internal Corrosion

9. Location of corrosion

A low point in pipe includes portions of the pipe contour in which water might settle out. This includes, but is not limited to, the low point of vertical bends at a crossing of a foreign line or road/railroad, etc., an elbow, a drop out or low point drain.

10. Was the gas/fluid treated with corrosion inhibitors or biocides?

Select Yes if corrosion inhibitors or biocides were included in the gas/fluid transported.

12. Were cleaning/dewatering pigs (or other operations) routinely utilized?

13. Were corrosion coupons routinely utilized?

For purposes of these Questions 12 and 13, "routinely" refers to an action that is performed on more than a sporadic or one-time basis as part of a regular program with the intent to ensure that water build-up and/or settling and internal corrosion do not occur.

Either External or Internal Corrosion

14.a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run

Magnetic Flux Leakage Tool is an in-line inspection tool using an imposed magnetic flux to detect instances of pipe wall loss from corrosion. This includes low- and high-resolution MFL tools. It does not include transverse flux MFL tools, which are a separate choice in this question.

Ultrasonic refers to an in-line inspection tool that uses ultrasonic technology to measure wall thickness and detect instances of wall loss.

Transverse Field/Triaxial tools are specialized magnetic flux leakage tools that use a flux oriented to improve ability to detect crack anomalies.

Combination Tool refers to any in-line inspection tool that uses a combination of these inspection technologies in a single tool.

15. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Incident?

Information from the initial post-construction hydrostatic test is not to be reported.

16. Has one or more Direct Assessment been conducted on this segment?

This refers to direct assessment as defined in §192.903. Instances in which one or more indirect monitoring tools (e.g., close interval survey, DCVG) have been used that might be used as part of direct assessment but which have not been used as part of the direct assessment process defined in §192.903 do NOT constitute a Direct Assessment for purposes of this question.

G2 – Natural Force Damage

Natural Force Damage includes a release or failure resulting from earth movement, earthquakes, landslides, subsidence, lightning, heavy rains/floods, washouts, flotation, mudslide, scouring, temperature, frost heave, frozen components, high winds, or similar natural causes.

Earth Movement NOT due to Heavy Rains/Floods refers to incidents caused by land shifts such as earthquakes, landslides, or subsidence, but not mudslides which are presumed to be initiated by heavy rains or floods.

Heavy Rains/Floods refer to all water-related natural force causes. While mudslides involve earth movement, report them here since typically they are an effect of heavy rains or floods.

Lightning includes both damage and/or fire caused by a direct lighting strike and damage and/or fire as a secondary effect from a lightning strike in the area. An example of such a secondary effect would be a forest fire started by lightning that results in damage to a pipeline system asset which results in an incident. (See also the discussion of "secondary ignition" under the *General Instructions.*)

Temperature includes weather-related temperature and thermal stress effects, either heat or cold, where temperature was the initiating cause.

> **Thermal stress** refers to mechanical stress induced in a pipe or component when some or all of its parts are not free to expand or contract in response to changes in temperature.

> **Frozen components** would include incidents where components are inoperable because of freezing and those due to cracking of a piece of equipment due to expansion of water during a freeze cycle.

High Winds includes damage caused by wind-induced forces. Select this category if the damage is due to the force of the wind itself. Damage caused by impact from objects blown by wind would be reported under G4 - Other Outside Force Damage.

Other Natural Force Damage. Select this sub-cause for types of Natural Force Damage not included otherwise, and describe in the space provided. If necessary, provide additional explanation in PART H – Narrative Description of the Incident.

Answer Questions 6 and 6.a if the incident occurred in conjunction with an extreme weather event such as a hurricane, tropical storm, or tornado. If an extreme weather event related to something other than a hurricane, tropical storm, or tornado was involved, indicate Other and describe the event in the space provided.

G3 – Excavation Damage

Excavation Damage includes a release or failure resulting directly from excavation damage by operator's personnel (oftentimes referred to as "first party" excavation damage) or by the operator's contractor (oftentimes referred to as "second party" excavation damage) or by people or contractors not associated with the operator (oftentimes referred to as "third party" excavation damage). Also, this section includes a release or failure determined to have resulted from previous damage due to excavation activity. For damage from outside forces OTHER than excavation which results in a release, use G2 - Natural Force Damage or G4 - Other Outside Force, as appropriate. Also, for a strike, physical contact, or other damage to a pipeline or facility that apparently was NOT related to excavation and that results in a delayed or eventual release, report the incident under G4 as "Previous Mechanical Damage NOT related to Excavation."

Excavation Damage by Operator (First Party) refers to incidents caused as a result of excavation by a direct employee of the operator.

Excavation Damage by Operator's Contractor (Second Party) refers to incidents caused as a result of excavation by the operator's contractor or agent or other party working for the operator.

Excavation Damage by Third Party refers to incidents caused by excavation damage resulting from actions by personnel or other third parties not working for or acting on behalf of the operator or its agent.

Previous Damage due to Excavation Activity refers to incidents that were apparently caused by prior excavation activity and that then resulted in a delayed or eventual release. Indications of prior excavation activity might come from the condition of the pipe when it is examined, or from records of excavation at the site, or through metallurgical analysis or other inspection and/or testing methods. Dents and gouges in the 10:00-to-2:00 o'clock positions on the pipe, for instance, may indicate an earlier strike, as might marks from the bucket or tracks of an earth moving machine or similar pieces of equipment.

1.a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run

Magnetic Flux Leakage Tool is an in-line inspection tool using an imposed magnetic flux to detect instances of pipe wall loss from corrosion. Includes low- and high-resolution MFL tools. Does not include transverse flux MFL tools, which are a separate choice in this question.

Ultrasonic refers to an in-line inspection tool that uses ultrasonic technology to measure wall thickness and detect instances of wall loss.

Transverse Field/Triaxial tools are specialized magnetic flux leakage tools that use a flux oriented to improve ability to detect crack anomalies.

Combination Tool refers to any in-line inspection tool that uses a combination of these inspection technologies in a single tool.

3. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Incident?

Information from the initial post-construction hydrostatic test is not to be reported.

4. Has one or more Direct Assessment been conducted on this segment?

This refers to direct assessment as defined in §192.903. Instances in which one or more indirect monitoring tools (e.g., close interval survey, DCVG) have been used that might be used as part of direct assessment but which were not used as part of the direct assessment process defined in §192.903 do not constitute a Direct Assessment for purposes of this question.

6. – 17. Complete these questions for any excavation damage sub-cause. Instructions for answering these questions can be found at CGA's web site, https://www.damagereporting.org/dr/control/userGuide.do.

G4 – Other Outside Force Damage

Other Outside Force Damage includes, but is not limited to, a release or failure resulting from non-excavation-related outside forces, such as nearby industrial, man-made, or other fire or explosion; damage by vehicles or other equipment; failures due to mechanical damage; and, intentional damage including vandalism and terrorism.

Nearby Industrial, Man-made or other Fire/Explosion as Primary Cause of Incident applies to situations where the fire occurred before - and *caused* - the release. (See also the discussion of "secondary ignition" under the *General Instructions*.) Examples of such an incident would be an explosion or fire that originated at a neighboring facility or installation (chemical plant, tank farm, or other industrial facility) or structure, debris, or brush/trees that results in a release at the operator's pipeline or facility. This includes forest, brush, or ground fires that are caused by human activity. If the fire, however, is known to have been started as a result of a lightning strike, the incident's cause is to be classified under G2 - Natural Force Damage. Arson events directed at harming the pipeline or the operator are to be reported as G4 - Intentional Damage (see below). This sub-cause is NOT to be used if the release occurred first and then the gas released from the pipeline system or facility ignited.

Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation. An example of this sub-cause would be a stopple tee that releases gas when damaged by a pickup truck maneuvering near the pipeline. Other motorized vehicles or equipment include tractors, backhoes, bulldozers and other tracked vehicles, and heavy equipment that can move. Include under this sub-cause incidents caused by vehicles operated by the pipeline operator, the pipeline operator's contractor, or a third party and specify the vehicle/equipment operator's affiliation from one of these three groups. Pipeline incidents resulting from vehicular traffic loading or other contact are to also be reported in this category. If the activity that caused the incident involved digging, drilling, boring, grading, cultivation or similar excavation activities, report under G3 - Excavation Damage.

Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring. This sub-cause includes impacts by maritime equipment or vessels (including their anchors or anchor chains or other attached equipment) that have lost their moorings and are carried into the pipeline facility by the current. This sub-cause also includes maritime equipment or vessels set adrift as a result of severe weather events and carried into the pipeline facility by waves, currents, or high winds. In such cases, also indicate the type of severe weather event. Do NOT report in this sub-cause incidents which are caused by the impact of maritime equipment or vessels while they are engaged in their normal or routine activities; such incidents are to be reported as "Routine or Normal Fishing or Other Maritime Activity NOT Engaged in Excavation" under this section G4 (see below) so long as those activities are not excavation activities. If those activities are excavation activities such as dredging or bank stabilization or renewal, the incident is to be reported under G3 - Excavation Damage.

Routine or Normal Fishing or Other Maritime Activity NOT Engaged in Excavation. This sub-cause includes incidents due to shrimping, purse seining, oil drilling, or oilfield workover rigs, including anchor strikes, and other routine or normal maritime-related activities UNLESS: the movement of the maritime asset was inadvertent and due to a severe weather event (this type of incident is to be reported under "Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring" in this section G4); or, the incident was caused by excavation activity such as dredging of waterways or bodies of water (this type of incident is to be reported under G3 - Excavation Damage).

Electrical Arcing from Other Equipment or Facility such as a pole transformer or adjacent facility's electrical equipment.

Previous Mechanical Damage NOT Related to Excavation. This sub-cause covers incidents where damage occurred at some time prior to the release that was apparently NOT related to excavation activities, and would include prior outside force damage of an unknown nature, prior natural force damage, prior damage from other outside forces, and any other previous mechanical damage other than that which was apparently related to prior excavation. Incidents resulting from previous damage sustained during construction, installation, or fabrication of the pipe or weld from which the release eventually occurred are to be reported under G5 - Material Failure of Pipe or Weld. (See this sub-cause for typical indications of previous construction, installation, or fabrication damage.) Incidents resulting from previous damage sustained as a result of excavation activities should be reported under G3 – Previous Damage due to Excavation Activity. (See this sub-cause for typical indications of prior excavation activity.)

Intentional Damage

> **Vandalism** means willful or malicious destruction of the operator's pipeline facility or equipment. This category would include arson, pranks, systematic damage inflicted to harass the operator, motor vehicle damage that was inflicted intentionally, and a variety of other intentional acts. (See also the discussion of "secondary ignition" under the *General Instructions.*)
>
> **Terrorism,** per 28 CFR §0.85 General Functions, includes the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives. Operators selecting this item are encouraged to also notify the FBI.
>
> **Theft of commodity or Theft of equipment** means damage by any individual or entity, by any mechanism, specifically to steal, or attempt to steal, the transported gas or pipeline equipment.
>
> **Other** Describe in the space provided and, if necessary, provide additional explanation in PART H – Narrative Description of the Incident.

Other Outside Force Damage. Select this sub-cause for types of Other Outside Force Damage not included otherwise, and describe in the space provided. If necessary, provide additional explanation in PART H – Narrative Description of the Incident.

G5 – Material Failure of Pipe or Weld

Use this section to report material failures **only if** "Item Involved in Incident" (PART C, Question 3) is "**Pipe**" (whether "**Pipe Body**" or "**Pipe Seam**") or "**Weld.**" Indicate how the sub-cause was determined or if the sub-cause is still being investigated.

This section includes releases in or failures from defects or anomalies within the material of the pipe body or within the pipe seam or other weld due to faulty manufacturing procedures, defects resulting from poor construction, installation, or fabrication practices, and in-service stresses such as vibration, fatigue, and environmental cracking.

Construction-, Installation-, or Fabrication-related includes a release or failure caused by a dent, gouge, excessive stress, or some other defect or anomaly introduced during the process of constructing, installing, or fabricating pipe and pipe welds, including welding or other activities performed at the facility. Included are releases from or failures of wrinkle bends, field welds, and damage sustained in transportation to the construction or fabrication site. Not included are failures due to seam defects, which are to be reported as Original Manufacturing-related (see below).

Original Manufacturing-related (NOT girth welds or other welds formed in the field) includes a release or failure caused by a defect or anomaly introduced during the process of manufacturing pipe, including seam defects and defects in the pipe body. This option is not appropriate for wrinkle bends, field welds, girth welds, or other joints fabricated in the field. Use this option for failures such as those due to defects of the longitudinal weld or inclusions in the pipe body.

Environmental Cracking-related includes failures by Stress Corrosion Cracking, Sulfide Stress Cracking, Hydrogen Stress Cracking or other environmental cracking mechanism.

If **Construction-, Installation-, or Fabrication-related**, or **Original Manufacturing-related** is selected, then select any contributing factors. Examples of Mechanical Stress include failures related to overburden or loss of support.

G6 – Equipment Failure

This section applies to failures of items <u>**other than**</u> **"Pipe" ("Pipe Body" or "Pipe Seam") or "Weld".**

Equipment Failure includes a release or failure resulting from: malfunction of control/relief equipment including valves, regulators, or other instrumentation; failures of compressors, or compressor-related equipment; failures of various types of connectors, connections, and appurtenances; failures of the body of equipment, vessel plate, or other material (including those caused by construction-, installation-, or fabrication-related and original manufacturing-related defects or anomalies); and, all other equipment-related failures.

Malfunction of Control/Relief Equipment. Examples of this type of incident cause include: overpressurization resulting from malfunction of a control or alarm device; malfunction of a relief valve; valves failing to open or close on command; or valves which opened or closed when not commanded to do so. If overpressurization or some other aspect of this incident was caused by incorrect operation, the incident is to be reported under G7 - Incorrect Operation.

ESD System Failure means failure of an emergency shutdown system.

Other Equipment Failure. Select this sub-cause for types of Equipment Failure not included otherwise, and describe in the space provided. If necessary, provide additional explanation in PART H – Narrative Description of the Incident.

G7 – Incorrect Operation

Incorrect Operation includes a release or failure resulting from operating, maintenance, repair, or other errors by facility personnel, including, but not limited to improper valve selection or operation, inadvertent overpressurization, or improper selection or installation of equipment.

Other Incorrect Operation. Select this sub-cause for types of Incorrect Operation not included otherwise, and describe in the space provided. If necessary, provide additional explanation in PART H – Narrative Description of the Incident.

G8 – Other Incident Cause

This section is provided for incidents whose cause is currently unknown, or where investigation into the cause has been exhausted and the final judgment as to the cause remains unknown, or where a cause has been determined which does not fit into any of the main cause categories listed in sections G1 thru G7.

If the incident cause is known but doesn't fit into any category in sections G1 thru G7, select **Miscellaneous** and enter a description of the incident cause, continuing with a more thorough explanation in PART H - Narrative Description of the Incident.

If the incident cause is unknown at the time of filing this report, select **Unknown** in this section and specify one reason from the accompanying two choices. Once the operator's investigation into the incident cause is completed, the operator is to file a Supplemental Report as soon as practicable either reporting the apparent cause or stating definitively that the cause remains Unknown, along with any other new, updated, and/or corrected information pertaining to the incident. This Supplemental Report is to include all new, updated, and/or corrected information pertaining to *all* portions of the report form known at this time, and not only that information related to the apparent cause.

Important Note: Whether the investigation is completed or not, or if the cause continues to be unknown, Supplemental Reports are to be filed reflecting new, updated, and/or corrected information ***as and when this information becomes available***. In those cases in which investigations are ongoing for an extended period of time, operators are to file a Supplemental Report within one year of their last report for the incident even in those instances where no new, updated, and/or corrected information has been obtained, with an explanation that the cause remains under investigation in PART H – Narrative Description of Incident. Additionally, final determination of the apparent cause and/or closure of the investigation does NOT preclude the need for the operator's filing of additional Supplemental Reports as and when new, updated, and/or corrected information becomes available.

PART H – NARRATIVE DESCRIPTION OF THE INCIDENT

Concisely describe the incident, including the facts, circumstances, and conditions that may have contributed directly or indirectly to causing the incident. Include secondary, contributing, or root causes when possible, or any other factors associated with the cause that are deemed pertinent. Use this section to clarify or explain unusual conditions, to provide sketches or drawings, and to explain any estimated data. Operators submitting reports on-line will be afforded the opportunity to attach/upload files (in PDF or JPG format only) containing sketches, drawings, or additional data.

If you selected Miscellaneous in section G8, the narrative is to describe the incident in detail, including all known or suspected causes and possible contributing factors.

PART I – PREPARER AND AUTHORIZED SIGNATURE

The Preparer is the person who compiled the data and prepared the responses to the report and who is to be contacted for more information (preferably the person most knowledgeable about the information in the report or who knows how to contact the person or persons most knowledgeable). Enter the Preparer's e-mail address if the Preparer has one, and the phone and fax numbers used by the Preparer.

An Authorized Signature must be obtained from an officer, manager, or other person whom the operator has designated to review and approve the report. This individual is responsible for assuring the accuracy and completeness of the reported data. In addition to their title, a phone number and email address are to be provided for the individual signing as the Authorized Signature.

NOTICE: This report is required by 49 CFR Part 191. Failure to report can result in a civil penalty not to exceed $100,000 for each violation for each day that such violation persists except that the maximum civil penalty shall not exceed $1,000,000 as provided in 49 USC 60122.

Form Approved
OMB NO: 2137-0522
Expires: 02/28/2014

U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration

INCIDENT REPORT – NATURAL AND OTHER GAS TRANSMISSION AND GATHERING PIPELINE SYSTEMS

Report Date ______________

No. ______________ (DOT Use Only)

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0522. Public reporting for this collection of information is estimated to be approximately 10 hours per response, including the time for reviewing instructions, gathering the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

INSTRUCTIONS

Important: *Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the PHMSA Pipeline Safety Community Web Page at http://www.phmsa.dot.gov/pipeline/library/forms.*

PART A – KEY REPORT INFORMATION

*Report Type: *(select all that apply)* ☐ Original ☐ Supplemental ☐ Final

*1. Operator's OPS-issued Operator Identification Number (OPID): /__/__/__/__/__/

*2. Name of Operator: ______________________________

*3. Address of Operator:

*3.a ______________________________ (Street Address)

*3.b ______________________________ (City)

*3.c State: /__/__/

*3.d Zip Code: /__/__/__/__/__/ - /__/__/__/__/

*4. Local time *(24-hr clock)* and date of the Incident:

/__/__/__/__/ Hour /__/__/ Month /__/__/ Day /__/__/ Year

*5. Location of Incident:

*Latitude: /__/__/ . /__/__/__/__/__/

*Longitude: - /__/__/__/ . /__/__/__/__/__/

6. National Response Center Report Number:

/__/__/__/__/__/__/

7. Local time *(24-hr clock)* and date of initial telephonic report to the National Response Center (if applicable):

/__/__/__/__/ Hour /__/__/ Month /__/__/ Day /__/__/ Year

*8. Incident resulted from:

☐ Unintentional release of gas
☐ Intentional release of gas
☐ Reasons other than release of gas

*9. Gas released: *(select only one, based on predominant volume released)*

☐ Natural Gas
☐ Propane Gas
☐ Synthetic Gas
☐ Hydrogen Gas
☐ Other Gas ⇨ Name: ______________________________

*10. Estimated volume of gas released unintentionally: /__/__/__/,/__/__/__/ Thousand Cubic Feet (MCF)

11. Estimated volume of intentional and controlled release/blowdown : /__/__/__/,/__/__/__/ Thousand Cubic Feet (MCF)

12. Estimated volume of accompanying liquid released: /__/__/__/,/__/__/__/ Barrels

*13. Were there fatalities? O Yes O No
If Yes, specify the number in each category:
*13.a Operator employees |_|_|_|_|_|
*13.b Contractor employees working for the Operator |_|_|_|_|_|
*13.c Non-Operator emergency responders |_|_|_|_|_|
*13.d Workers working on the right-of-way, but NOT associated with this Operator |_|_|_|_|_|
*13.e General public |_|_|_|_|_|
13.f Total fatalities (sum of above) |_|_|_|_|_|

*14. Were there injuries requiring inpatient hospitalization? O Yes O No
If Yes, specify the number in each category:
*14.a Operator employees |_|_|_|_|_|
*14.b Contractor employees working for the Operator |_|_|_|_|_|
*14.c Non-Operator emergency responders |_|_|_|_|_|
*14.d Workers working on the right-of-way, but NOT associated with this Operator |_|_|_|_|_|
*14.e General public |_|_|_|_|_|
14.f Total injuries (sum of above) |_|_|_|_|_|

15. Was the pipeline/facility shut down due to the incident?
O Yes O No ⇨ Explain: ____________________

If Yes, complete Questions 15.a and 15.b: *(use local time, 24-hr clock)*
15.a Local time and date of shutdown |_|_|_|_|_| Hour |_|_|_| Month |_|_|_| Day |_|_|_| Year
15.b Local time pipeline/facility restarted |_|_|_|_|_| Hour |_|_|_| Month |_|_|_| Day |_|_|_| Year O Still shut down* *(*Supplemental Report required)*

*16. Did the gas ignite? O Yes O No

*17. Did the gas explode? O Yes O No

18. Number of general public evacuated: |_|_|_|_|_|_|_|_|

19. Time sequence: *(use local time, 24-hour clock)*
19.a Local time operator identified incident |_|_|_|_|_| Hour |_|_|_| Month |_|_|_| Day |_|_|_| Year
19.b Local time operator resources arrived on site |_|_|_|_|_| Hour |_|_|_| Month |_|_|_| Day |_|_|_| Year

PART B – ADDITIONAL LOCATION INFORMATION

*1. Was the origin of the Incident onshore?
O Yes *(Complete Questions 2-12)* O No *(Complete Questions 13-15)*

If Onshore:

*2. State: /__/__/

*3. Zip Code: /__/__/__/__/__/ - /__/__/__/__/

4 ____________________ City 5 ____________________ County or Parish

6. Operator designated location: *(select only one)*
☐ Milepost/Valve Station *(specify in shaded area below)*
☐ Survey Station No. *(specify in shaded area below)*

/__/__/__/__/__/__/__/__/__/__/__/__/__/__/

7. Pipeline/Facility name: ____________________

8. Segment name/ID: ____________________

*9. Was Incident on Federal land, other than the Outer Continental Shelf (OCS)? O Yes O No

*10. Location of Incident: *(select only one)*
☐ Operator-controlled property
☐ Pipeline right-of-way

*11. Area of Incident (as found): *(select only one)*
☐ Belowground storage or aboveground storage vessel, including attached appurtenances
☐ Underground ⇨ Specify: O Under soil
O Under a building O Under pavement
O Exposed due to excavation
O In underground enclosed space (e.g., vault)
O Other ____________________
Depth-of-Cover (in): /__//__/__/__/
☐ Aboveground ⇨ Specify:
O Typical aboveground facility piping or appurtenance
O Overhead crossing
O In or spanning an open ditch
O Inside a building O Inside other enclosed space
O Other ____________________
☐ Transition Area ⇨ Specify: O Soil/air interface O Wall sleeve O Pipe support or other close contact area
O Other ____________________

*12. Did Incident occur in a crossing? O Yes O No
If Yes, specify type below:
☐ Bridge crossing ☐ Specify: O Cased O Uncased
☐ Railroad crossing ☐ *(select all that apply)*
O Cased O Uncased O Bored/drilled
☐ Road crossing ☐ *(select all that apply)*
O Cased O Uncased O Bored/drilled
☐ Water crossing
⇨ Specify: O Cased O Uncased
Name of body of water, if commonly known:
____
Approx. water depth (ft) at the point of the Incident:
/__//__/__/__/
(select only one of the following)
O Shoreline/Bank crossing
O Below water, pipe in bored/drilled crossing
O Below water, pipe buried below bottom (NOT in bored/drilled crossing)
O Below water, pipe on or above bottom

If Offshore:

*13. Approximate water depth (ft.) at the point of the Incident:
/__//__/__/__/

*14. Origin of Incident:
☐ In State waters
⇨ Specify: State: /__/__/
Area: ____________________
Block/Tract #: /__/__/__/__/__/
Nearest County/Parish: ____________________
☐ On the Outer Continental Shelf (OCS)
⇨ Specify: Area: ____________________
Block #: /__/__/__/__/__/

*15. Area of Incident: *(select only one)*
☐ Shoreline/Bank crossing or shore approach
☐ Below water, pipe buried or jetted below seabed
☐ Below water, pipe on or above seabed
☐ Splash Zone of riser
☐ Portion of riser outside of Splash Zone, including riser bend
☐ Platform

PART C – ADDITIONAL FACILITY INFORMATION	

*1. Is the pipeline or facility:
- ☐ Interstate
- ☐ Intrastate

*2. Part of system involved in incident: *(select only one)*
- ☐ Belowground Storage, including Associated Equipment and Piping
- ☐ Aboveground Storage, including Associated Equipment and Piping
- ☐ Onshore Compressor Station Equipment and Piping
- ☐ Onshore Regulator/Metering Station Equipment and Piping
- ☐ Onshore Pipeline, including Valve Sites
- ☐ Offshore Platform, including Platform-mounted Equipment and Piping
- ☐ Offshore Pipeline, including Riser and Riser Bend

*3. Item involved in incident: *(select only one)*

☐ Pipe ⇨ Specify: O Pipe Body O Pipe Seam

3.a Nominal diameter of pipe (in): |__|__|.|__|__|__|

3.b Wall thickness (in): |__|.|__|__|__|

3.c SMYS (Specified Minimum Yield Strength) of pipe (psi): |__|__|__|,|__|__|__|

3.d Pipe specification: ____________________

*3.e Pipe Seam ⇨ Specify: O Longitudinal ERW - High Frequency O Single SAW O Flash Welded
O Longitudinal ERW - Low Frequency O DSAW O Continuous Welded
O Longitudinal ERW – Unknown Frequency O Furnace Butt Welded
O Spiral Welded ERW O Spiral Welded SAW O Spiral Welded DSAW
O Lap Welded O Seamless O Other ____________________

3.f Pipe manufacturer: ____________________

3.g Year of manufacture: |__|__|__|__|

*3.h Pipeline coating type at point of incident
⇨ Specify: O Fusion Bonded Epoxy O Coal Tar O Asphalt O Polyolefin
O Extruded Polyethylene O Field Applied Epoxy O Cold Applied Tape O Paint
O Composite O None O Other ____________________

☐ Weld, including heat-affected zone ⇨ Specify: O Pipe Girth Weld O Other Butt Weld O Fillet Weld O Other__________

If Pipe Girth Weld is selected, complete items 3.a. through h. above. If the values differ on either side of the girth weld, enter one value in 3.a. through h. and list the different value(s) in Part H - Narrative Description of the Incident.

☐ Valve O Mainline ⇨ Specify: O Butterfly O Check O Gate O Plug O Ball O Globe
O Other ____________________

3.i Mainline valve manufacturer: ____________________

3.j Year of manufacture: |__|__|__|__|

O Relief Valve

O Auxiliary or Other Valve

- ☐ Compressor
- ☐ Meter
- ☐ Scraper/Pig Trap
- ☐ Separator/Separator Filter
- ☐ Strainer/Filter
- ☐ Dehydrator/Drier/Treater
- ☐ Regulator/Control Valve
- ☐ Drip/Drip Collection Device
- ☐ Pulsation Bottle
- ☐ Cooler
- ☐ Repair Sleeve or Clamp
- ☐ Hot Tap Equipment
- ☐ Stopple Fitting
- ☐ Flange
- ☐ Relief Line
- ☐ Auxiliary Piping (e.g. drain lines)
- ☐ Tubing
- ☐ Instrumentation
- ☐ Underground Gas Storage or Cavern
- ☐ Pressure Vessel
- ☐ Other ____________________

4. Year item involved in incident was installed: |__|__|__|__|

*5. Material involved in Incident: *(select only one)*

☐ Carbon Steel
☐ Plastic
☐ Material other than Carbon Steel or Plastic ⇨ *Specify: ______________________

*6. Type of Incident involved: *(select only one)*

☐ Mechanical Puncture ⇨ Approx. size: /_/_/_/_//_/in. (axial) by /_/_/_/_//_/in. (circumferential)
☐ Leak ⇨ Select Type: O Pinhole O Crack O Connection Failure O Seal or Packing O Other
☐ Rupture ⇨ Select Orientation: O Circumferential O Longitudinal O Other ______________________
Approx. size: /_/_/_/_//_/ in. (widest opening) by /_/_/_/_/_//_/in. (length circumferentially or axially)
☐ Other ⇨ *Describe: ______________________

PART D – ADDITIONAL CONSEQUENCE INFORMATION

*1. Class Location of Incident: *(select only one)*

☐ Class 1 Location
☐ Class 2 Location
☐ Class 3 Location
☐ Class 4 Location

*2. Did this Incident occur in a High Consequence Area (HCA)?

☐ No
☐ Yes ⇨ 2.a Specify the Method used to identify the HCA: O Method 1 O Method 2

*3. What is the PIR (Potential Impact Radius) for the location of this Incident? /_//_/_/_/_/ feet

*4. Were any structures outside the PIR impacted or otherwise damaged by heat/fire resulting from the Incident? O Yes O No

*5. Were any structures outside the PIR impacted or otherwise damaged NOT by heat/fire resulting from the Incident? O Yes O No

*6. Were any of the fatalities or injuries reported for persons located outside the PIR? O Yes O No

*7. Estimated Property Damage:

*7.a Estimated cost of public and non-Operator private property damage $/_/_/_//_/_/_//_/_/_/
*7.b Estimated cost of Operator's property damage & repairs $/_/_/_//_/_/_//_/_/_/
*7.c Estimated cost of Operator's emergency response $/_/_/_//_/_/_//_/_/_/
*7.d Estimated other costs $/_/_/_//_/_/_//_/_/_/
Describe ______________________
7.e Total estimated property damage (sum of above) $/_/_/_//_/_/_//_/_/_/

Cost of Gas Released

*7.f Estimated cost of gas released unintentionally $/_/_/_//_/_/_//_/_/_/
*7.g Estimated cost of gas released during intentional and controlled blowdown $/_/_/_//_/_/_//_/_/_/
7.h Total estimated cost of gas released (sum of 7.f & 7.g above) $/_/_/_//_/_/_//_/_/_/

PART E – ADDITIONAL OPERATING INFORMATION

*1. Estimated pressure at the point and time of the Incident (psig): / / // / / /

*2. Maximum Allowable Operating Pressure (MAOP) at the point and time of the Incident (psig) : / / // / / /

*3. Describe the pressure on the system or facility relating to the Incident: *(select only one)*
- ☐ Pressure did not exceed MAOP
- ☐ Pressure exceeded MAOP, but did not exceed 110% of MAOP
- ☐ Pressure exceeded 110% of MAOP

*4. Not including pressure reductions required by PHMSA regulations (such as for repairs and pipe movement), was the system or facility relating to the Incident operating under an established pressure restriction with pressure limits below those normally allowed by the MAOP ?
- ☐ No
- ☐ Yes ⇨ *(Complete 4.a and 4.b below)*

*4.a Did the pressure exceed this established pressure restriction? O Yes O No

*4.b Was this pressure restriction mandated by PHMSA or the State? O PHMSA O State O Not mandated

*5. Was "Onshore Pipeline, Including Valve Sites" OR "Offshore Pipeline, Including Riser and Riser Bend" selected in PART C, Question 2?
- ☐ No
- ☐ Yes ⇨ *(Complete 5.a – 5.e below)*

5.a Type of upstream valve used to initially isolate release source: O Manual O Automatic O Remotely Controlled

5.b Type of downstream valve used to initially isolate release source: O Manual O Automatic O Remotely Controlled O Check Valve

5.c Length of segment isolated between valves (ft): / / / // / / /

5.d Is the pipeline configured to accommodate internal inspection tools?
- ☐ Yes
- ☐ No ⇨ Which physical features limit tool accommodation? *(select all that apply)*
  - O Changes in line pipe diameter
  - O Presence of unsuitable mainline valves
  - O Tight or mitered pipe bends
  - O Other passage restrictions (i.e. unbarred tee's, projecting instrumentation, etc.)
  - O Extra thick pipe wall (applicable only for magnetic flux leakage internal inspection tools)
  - O Other ⇨ Describe:______________________________

5.e For this pipeline, are there operational factors which significantly complicate the execution of an internal inspection tool run?
- ☐ No
- ☐ Yes ⇨ Which operational factors complicate execution? *(select all that apply)*
  - O Excessive debris or scale, wax, or other wall build-up
  - O Low operating pressure(s)
  - O Low flow or absence of flow
  - O Incompatible commodity
  - O Other ⇨ Describe:______________________________

*5.f Function of pipeline system: *(select only one)*

☐ Transmission System	☐ Transmission Line of Distribution System
☐ Type A Gathering	☐ Type B Gathering
☐ Storage Gathering	☐ Offshore Gathering

*6. Was a Supervisory Control and Data Acquisition (SCADA)-based system in place on the pipeline or facility involved in the Incident?
☐ No
☐ Yes ⇨ *6.a Was it operating at the time of the Incident? O Yes O No
*6.b Was it fully functional at the time of the Incident? O Yes O No
*6.c Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume or pack calculations) assist with the detection of the Incident? O Yes O No
*6.d Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the confirmation of the Incident? O Yes O No

*7. How was the Incident initially identified for the Operator? *(select only one)*
☐ SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume or pack calculations)
☐ Static Shut-in Test or Other Pressure or Leak Test
☐ Controller
☐ Local Operating Personnel, including contractors
☐ Air Patrol
☐ Ground Patrol by Operator or its contractor
☐ Notification from Public
☐ Notification from Emergency Responder
☐ Notification from Third Party that caused the Incident
☐ Other ______

*7.a If "Controller", "Local Operating Personnel, including contractors", "Air Patrol", or "Ground Patrol by Operator or its contractor" is selected in Question 7, specify the following: *(select only one)*
O Operator employee O Contractor working for the Operator

*8. Was an investigation initiated into whether or not the controller(s) or control room issues were the cause of or a contributing factor to the Incident? *(select only one)*
☐ Yes, but the investigation of the control room and/or controller actions has not yet been completed by the operator *(Supplemental Report required)*
☐ No, the facility was not monitored by a controller(s) at the time of the Incident
☐ No, the operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: *(provide an explanation for why the operator did not investigate)*
______
______
______
☐ Yes, specify investigation result(s): *(select all that apply)*
O Investigation reviewed work schedule rotations, continuous hours of service (while working for the Operator) and other factors associated with fatigue
O Investigation did NOT review work schedule rotations, continuous hours of service (while working for the Operator) and other factors associated with fatigue *(provide an explanation for why not)*
______
______
______
O Investigation identified no control room issues
O Investigation identified no controller issues
O Investigation identified incorrect controller action or controller error
O Investigation identified that fatigue may have affected the controller(s) involved or impacted the involved controller(s) response
O Investigation identified incorrect procedures
O Investigation identified incorrect control room equipment operation
O Investigation identified maintenance activities that affected control room operations, procedures, and/or controller response
O Investigation identified areas other than those above ⇨ Describe: ______
______
______
______

PART F – DRUG & ALCOHOL TESTING INFORMATION	

*1. As a result of this Incident, were any Operator employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?

O No

O Yes ⇨ *1.a Specify how many were tested: /__/__/

*1.b Specify how many failed: /__/__/

*2. As a result of this Incident, were any Operator contractor employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?

O No

O Yes ⇨ *2.a Specify how many were tested: /__/__/

*2.b Specify how many failed: /__/__/

PART G – APPARENT CAUSE	*Select only one box from PART G in the shaded column on the left representing the APPARENT Cause of the Incident, and answer the questions on the right. Describe secondary, contributing, or root causes of the Incident in the narrative (PART H).*

G1 - Corrosion Failure – *only one sub-cause can be picked from shaded left-hand column

☐ **External Corrosion**	*1. Results of visual examination: O Localized Pitting O General Corrosion O Other ______ *2. Type of corrosion: *(select all that apply)* O Galvanic O Atmospheric O Stray Current O Microbiological O Selective Seam O Other ______ *3. The type(s) of corrosion selected in Question 2 is based on the following: *(select all that apply)* O Field examination O Determined by metallurgical analysis O Other ______ *4. Was the failed item buried under the ground? O Yes ⇨ *4.a Was failed item considered to be under cathodic protection at the time of the incident? O Yes ⇨ Year protection started: |_|_|_|_| O No *4.b Was shielding, tenting, or disbonding of coating evident at the point of the incident? O Yes O No *4.c Has one or more Cathodic Protection Survey been conducted at the point of the incident? O Yes, CP Annual Survey ⇨ Most recent year conducted: |_|_|_|_| O Yes, Close Interval Survey ⇨ Most recent year conducted: |_|_|_|_| O Yes, Other CP Survey ⇨ Most recent year conducted: |_|_|_|_| O No O No ⇨ 4.d Was the failed item externally coated or painted? O Yes O No *5. Was there observable damage to the coating or paint in the vicinity of the corrosion? O Yes O No
☐ **Internal Corrosion**	*6. Results of visual examination: O Localized Pitting O General Corrosion O Not cut open O Other ______ *7. Cause of corrosion: *(select all that apply)* O Corrosive Commodity O Water drop-out/Acid O Microbiological O Erosion O Other ______ *8. The cause(s) of corrosion selected in Question 7 is based on the following: *(select all that apply)* O Field examination O Determined by metallurgical analysis O Other ______ *9. Location of corrosion: *(select all that apply)* O Low point in pipe O Elbow O Drop-out O Other ______ *10. Was the gas/fluid treated with corrosion inhibitors or biocides? O Yes O No 11. Was the interior coated or lined with protective coating? O Yes O No 12. Were cleaning/dewatering pigs (or other operations) routinely utilized? O Not applicable - Not mainline pipe O Yes O No 13. Were corrosion coupons routinely utilized? O Not applicable - Not mainline pipe O Yes O No

Complete the following if any Corrosion Failure sub-cause is selected AND the "Item Involved in Incident" (from PART C, Question 3) is Pipe or Weld.

14. Has one or more internal inspection tool collected data at the point of the Incident?
 O Yes O No

 14.a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:
 - O Magnetic Flux Leakage Tool __/__/__/__/
 - O Ultrasonic __/__/__/__/
 - O Geometry __/__/__/__/
 - O Caliper __/__/__/__/
 - O Crack __/__/__/__/
 - O Hard Spot __/__/__/__/
 - O Combination Tool __/__/__/__/
 - O Transverse Field/Triaxial __/__/__/__/
 - O Other ______________ __/__/__/__/

15. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Incident?
 O Yes ⇨ Most recent year tested: __/__/__/__/ Test pressure (psig): __/__/__/__/__/
 O No

16. Has one or more Direct Assessment been conducted on this segment?
 O Yes, and an investigative dig was conducted at the point of the Incident ⇨ Most recent year conducted: __/__/__/__/
 O Yes, but the point of the Incident was not identified as a dig site ⇨ Most recent year conducted: __/__/__/__/
 O No

17. Has one or more non-destructive examination been conducted at the point of the Incident since January 21, 2002?
 O Yes O No

 17.a If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:
 - O Radiography __/__/__/__/
 - O Guided Wave Ultrasonic __/__/__/__/
 - O Handheld Ultrasonic Tool __/__/__/__/
 - O Wet Magnetic Particle Test __/__/__/__/
 - O Dry Magnetic Particle Test __/__/__/__/
 - O Other ______________ __/__/__/__/

G2 - Natural Force Damage - *only one sub-cause can be picked from shaded left-hand column

☐ Earth Movement, NOT due to Heavy Rains/Floods	*1. Specify: O Earthquake O Subsidence O Landslide O Other ________
☐ Heavy Rains/Floods	2. Specify: O Washout/Scouring O Flotation O Mudslide O Other ________
☐ Lightning	3. Specify: O Direct hit O Secondary impact such as resulting nearby fires
☐ Temperature	4. Specify: O Thermal Stress O Frost Heave O Frozen Components O Other ________
☐ High Winds	
☐ Other Natural Force Damage	*5. Describe: ________

Complete the following if any Natural Force Damage sub-cause is selected.

*6. Were the natural forces causing the Incident generated in conjunction with an extreme weather event? O Yes O No

 *6.a If Yes, specify: *(select all that apply)* O Hurricane O Tropical Storm O Tornado O Other ________

G3 – Excavation Damage - *only one sub-cause can be picked from shaded left-hand column

☐ Excavation Damage by Operator (First Party)	
☐ Excavation Damage by Operator's Contractor (Second Party)	
☐ Excavation Damage by Third Party	
☐ Previous Damage due to Excavation Activity	**Complete Questions 1-5 ONLY IF the "Item Involved in Incident" (from PART C, Question 3) is Pipe or Weld.**

*1. Has one or more internal inspection tool collected data at the point of the Incident?
O Yes O No

1.a If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:

- O Magnetic Flux Leakage |_|_|_|_|
- O Ultrasonic |_|_|_|_|
- O Geometry |_|_|_|_|
- O Caliper |_|_|_|_|
- O Crack |_|_|_|_|
- O Hard Spot |_|_|_|_|
- O Combination Tool |_|_|_|_|
- O Transverse Field/Triaxial |_|_|_|_|
- O Other ______________ |_|_|_|_|

2. Do you have reason to believe that the internal inspection was completed BEFORE the damage was sustained? O Yes O No

3. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Incident?

O Yes ⇨ Most recent year tested: |_|_|_|_|
Test pressure (psig): |_|_|,|_|_|_|
O No

4. Has one or more Direct Assessment been conducted on the pipeline segment?

O Yes, and an investigative dig was conducted at the point of the Incident
⇨ Most recent year conducted: |_|_|_|_|
O Yes, but the point of the Incident was not identified as a dig site
⇨ Most recent year conducted: |_|_|_|_|
O No

5. Has one or more non-destructive examination been conducted at the point of the Incident since January 1, 2002?
O Yes O No

5.a If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:

- O Radiography |_|_|_|_|
- O Guided Wave Ultrasonic |_|_|_|_|
- O Handheld Ultrasonic Tool |_|_|_|_|
- O Wet Magnetic Particle Test |_|_|_|_|
- O Dry Magnetic Particle Test |_|_|_|_|
- O Other ______________ |_|_|_|_|

Complete the following if Excavation Damage by Third Party is selected as the sub-cause.

*6. Did the operator get prior notification of the excavation activity? O Yes O No

*6.a If Yes, Notification received from: *(select all that apply)* O One-Call System O Excavator O Contractor O Landowner

Complete the following mandatory CGA-DIRT Program questions if any Excavation Damage sub-cause is selected.

*7. Do you want PHMSA to upload the following information to CGA-DIRT (www.cga-dirt.com)? O Yes O No

*8. Right-of-Way where event occurred: *(select all that apply)*

- ☐ Public ⇨ Specify: O City Street O State Highway O County Road O Interstate Highway O Other
- ☐ Private ⇨ Specify: O Private Landowner O Private Business O Private Easement
- ☐ Pipeline Property/Easement
- ☐ Power/Transmission Line
- ☐ Railroad
- ☐ Dedicated Public Utility Easement
- ☐ Federal Land
- ☐ Data not collected
- ☐ Unknown/Other

*9. Type of excavator: *(select only one)*

O Contractor O County O Developer O Farmer O Municipality O Occupant
O Railroad O State O Utility O Data not collected O Unknown/Other

*10. Type of excavation equipment: *(select only one)*

O Auger O Backhoe/Trackhoe O Boring O Drilling O Directional Drilling
O Explosives O Farm Equipment O Grader/Scraper O Hand Tools O Milling Equipment
O Probing Device O Trencher O Vacuum Equipment O Data not collected O Unknown/Other

*11. Type of work performed: *(select only one)*

O Agriculture O Cable TV O Curb/Sidewalk O Building Construction O Building Demolition
O Drainage O Driveway O Electric O Engineering/Surveying O Fencing
O Grading O Irrigation O Landscaping O Liquid Pipeline O Milling
O Natural Gas O Pole O Public Transit Authority O Railroad Maintenance O Road Work
O Sewer (Sanitary/Storm) O Site Development O Steam O Storm Drain/Culvert O Street Light
O Telecommunications O Traffic Signal O Traffic Sign O Water O Waterway Improvement
O Data not collected O Unknown/Other

*12. Was the One-Call Center notified? O Yes O No

*12.a If Yes, specify ticket number: /_/_/_/_/_/_/_/_/_/_/_/_/_/_/_/_/_/_/_/

*12.b If this is a State where more than a single One-Call Center exists, list the name of the One-Call Center notified:

____

*13. Type of Locator: O Utility Owner O Contract Locator O Data not collected O Unknown/Other

*14. Were facility locate marks visible in the area of excavation? O No O Yes O Data not collected O Unknown/Other

*15. Were facilities marked correctly? O No O Yes O Data not collected O Unknown/Other

*16. Did the damage cause an interruption in service? O No O Yes O Data not collected O Unknown/Other

*16.a If Yes, specify duration of the interruption: /__/__/__/__/ hours

(This CGA-DIRT section continued on next page with Question 17.)

*17. Description of the CGA-DIRT Root Cause *(select only the one predominant first level CGA-DIRT Root Cause and then, where available as a choice, the one predominant second level CGA-DIRT Root Cause as well)*:

☐ *One-Call Notification Practices Not Sufficient: *(select only one)*
- O No notification made to the One-Call Center
- O Notification to One-Call Center made, but not sufficient
- O Wrong information provided

☐ *Locating Practices Not Sufficient: *(select only one)*
- O Facility could not be found/located
- O Facility marking or location not sufficient
- O Facility was not located or marked
- O Incorrect facility records/maps

☐ *Excavation Practices Not Sufficient: *(select only one)*
- O Excavation practices not sufficient (other)
- O Failure to maintain clearance
- O Failure to maintain the marks
- O Failure to support exposed facilities
- O Failure to use hand tools where required
- O Failure to verify location by test-hole (pot-holing)
- O Improper backfilling

☐ One-Call Notification Center Error

☐ Abandoned Facility

☐ Deteriorated Facility

☐ Previous Damage

☐ Data Not Collected

☐ Other / None of the Above *(explain)* ____

G4 - Other Outside Force Damage - *only one sub-cause can be picked from shaded left-hand column

☐ **Nearby Industrial, Man-made, or Other Fire/Explosion as Primary Cause of Incident**	
☐ **Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation**	*1. Vehicle/Equipment operated by: *(select only one)* O Operator O Operator's Contractor O Third Party
☐ **Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring**	*2. Select one or more of the following IF an extreme weather event was a factor: O Hurricane O Tropical Storm O Tornado O Heavy Rains/Flood O Other ______________
☐ **Routine or Normal Fishing or Other Maritime Activity NOT Engaged in Excavation**	
☐ **Electrical Arcing from Other Equipment or Facility**	
☐ **Previous Mechanical Damage NOT Related to Excavation**	see below

Complete Questions 3-7 ONLY IF the "Item Involved in Incident" (from PART C, Question 3) is Pipe or Weld.

3. Has one or more internal inspection tool collected data at the point of the incident?
   O Yes O No

   3.a If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:

   - O Magnetic Flux Leakage |_|_|_|_|
   - O Ultrasonic |_|_|_|_|
   - O Geometry |_|_|_|_|
   - O Caliper |_|_|_|_|
   - O Crack |_|_|_|_|
   - O Hard Spot |_|_|_|_|
   - O Combination Tool |_|_|_|_|
   - O Transverse Field/Triaxial |_|_|_|_|
   - O Other |_|_|_|_|

4. Do you have reason to believe that the internal inspection was completed BEFORE the damage was sustained? O Yes O No

5. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the incident?
   O Yes ⇨ Most recent year tested: |_|_|_|_|
   Test pressure (psig): |_|_|_|_|_|_|
   O No

6. Has one or more Direct Assessment been conducted on the pipeline segment?
   O Yes, and an investigative dig was conducted at the point of the incident
   ⇨ Most recent year conducted: |_|_|_|_|
   O Yes, but the point of the incident was not identified as a dig site
   ⇨ Most recent year conducted: |_|_|_|_|
   O No

(This section continued on next page with Question 7.)

	7. Has one or more non-destructive examination been conducted at the point of the incident since January 1, 2002? O Yes O No 7.a If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted: O Radiography |_|_|_|_| O Guided Wave Ultrasonic |_|_|_|_| O Handheld Ultrasonic Tool |_|_|_|_| O Wet Magnetic Particle Test |_|_|_|_| O Dry Magnetic Particle Test |_|_|_|_| O Other ____________ |_|_|_|_|
☐ Intentional Damage	*8. Specify: O Vandalism O Terrorism O Theft of transported commodity O Theft of equipment O Other ____________
☐ Other Outside Force Damage	*9. Describe: ____________

G5 - Material Failure of Pipe or Weld	**Use this section to report material failures ONLY IF the "Item Involved in Incident" (from PART C, Question 3) is "Pipe" or "Weld."** *Only one sub-cause can be picked from shaded left-hand column

1. The sub-cause selected below is based on the following: *(select all that apply)*

☐ Field Examination ☐ Determined by Metallurgical Analysis ☐ Other Analysis______________________

☐ Sub-cause is Tentative or Suspected; Still Under Investigation *(Supplemental Report required)*

☐ **Construction-, Installation-, or Fabrication-related** ☐ **Original Manufacturing-related (NOT girth weld or other welds formed in the field)**	*2. List contributing factors: *(select all that apply)* ☐ Fatigue- or Vibration-related: O Mechanically-induced prior to installation (such as during transport of pipe) O Mechanical Vibration O Pressure-related O Thermal O Other ______________________ ☐ Mechanical Stress ☐ Other ______________________
☐ **Environmental Cracking-related**	*3. Specify: O Stress Corrosion Cracking O Sulfide Stress Cracking O Hydrogen Stress Cracking O Other ______________________

Complete the following if any Material Failure of Pipe or Weld sub-cause is selected.

*4. Additional factors (*select all that apply*): O Dent O Gouge O Pipe Bend O Arc Burn O Crack O Lack of Fusion O Lamination O Buckle O Wrinkle O Misalignment O Burnt Steel O Other ______________________

*5. Has one or more internal inspection tool collected data at the point of the Incident? O Yes O No

*5.a If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:

O Magnetic Flux Leakage Tool /_/_/_/_/
O Ultrasonic /_/_/_/_/
O Geometry /_/_/_/_/
O Caliper /_/_/_/_/
O Crack /_/_/_/_/
O Hard Spot /_/_/_/_/
O Combination Tool /_/_/_/_/
O Transverse Field/Triaxial /_/_/_/_/
O Other ______________ /_/_/_/_/

*6. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Incident?

O Yes ⇨ *Most recent year tested: /_/_/_/_/ *Test pressure (psig): /_/_/_/_/_/_/
O No

*7. Has one or more Direct Assessment been conducted on the pipeline segment?

O Yes, and an investigative dig was conducted at the point of the Incident ⇨ Most recent year conducted: /_/_/_/_/
O Yes, but the point of the Incident was not identified as a dig site ⇨ Most recent year conducted: /_/_/_/_/
O No

*8. Has one or more non-destructive examination(s) been conducted at the point of the Incident since January 1, 2002?

O Yes O No

*8.a If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:

O Radiography /_/_/_/_/
O Guided Wave Ultrasonic /_/_/_/_/
O Handheld Ultrasonic Tool /_/_/_/_/
O Wet Magnetic Particle Test /_/_/_/_/
O Dry Magnetic Particle Test /_/_/_/_/
O Other ______________ /_/_/_/_/

G6 - Equipment Failure - *only one sub-cause can be picked from shaded left-hand column

☐ Malfunction of Control/Relief Equipment	*1. Specify: *(select all that apply)* O Control Valve O Instrumentation O SCADA O Communications O Block Valve O Check Valve O Relief Valve O Power Failure O Stopple/Control Fitting O Pressure Regulator O ESD System Failure O Other ______
☐ Compressor or Compressor-related Equipment	*2. Specify: O Seal/Packing Failure O Body Failure O Crack in Body O Appurtenance Failure O Pressure Vessel Failure O Other ______
☐ Threaded Connection/Coupling Failure	3. Specify: O Pipe Nipple O Valve Threads O Mechanical Coupling O Threaded Pipe Collar O Threaded Fitting O Other ______
☐ Non-threaded Connection Failure	*4. Specify: O O-Ring O Gasket O Seal (NOT compressor seal) or Packing O Other______
☐ Defective or Loose Tubing or Fitting	
☐ Failure of Equipment Body (except Compressor), Vessel Plate, or other Material	
☐ Other Equipment Failure	*5. Describe: ______

Complete the following if any Equipment Failure sub-cause is selected.

*6. Additional factors that contributed to the equipment failure: *(select all that apply)*

- O Excessive vibration
- O Overpressurization
- O No support or loss of support
- O Manufacturing defect
- O Loss of electricity
- O Improper installation
- O Mismatched items (different manufacturer for tubing and tubing fittings)
- O Dissimilar metals
- O Breakdown of soft goods due to compatibility issues with transported gas/fluid
- O Valve vault or valve can contributed to the release
- O Alarm/status failure
- O Misalignment
- O Thermal stress
- O Other ______

G7 - Incorrect Operation - *only one sub-cause can be picked from shaded left-hand column

☐ Damage by Operator or Operator's Contractor NOT Related to Excavation and NOT due to Motorized Vehicle/Equipment Damage	
☐ Underground Gas Storage, Pressure Vessel, or Cavern Allowed or Caused to Overpressure	*1. Specify: O Valve Misalignment O Incorrect Reference Data/Calculation O Miscommunication O Inadequate Monitoring O Other ______
☐ Valve Left or Placed in Wrong Position, but NOT Resulting in an Overpressure	
☐ Pipeline or Equipment Overpressured	
☐ Equipment Not Installed Properly	
☐ Wrong Equipment Specified or Installed	
☐ Other Incorrect Operation	*2. Describe: ______

Complete the following if any Incorrect Operation sub-cause is selected.

*3. Was this incident related to: *(select all that apply)*
- O Inadequate procedure
- O No procedure established
- O Failure to follow procedure
- O Other: ______

*4. What category type was the activity that caused the incident:
- O Construction
- O Commissioning
- O Decommissioning
- O Right-of-Way activities
- O Routine maintenance
- O Other maintenance
- O Normal operating conditions
- O Non-routine operating conditions (abnormal operations or emergencies)

*5. Was the task(s) that led to the incident identified as a covered task in your Operator Qualification Program? O Yes O No

*5.a If Yes, were the individuals performing the task(s) qualified for the task(s)?
- O Yes, they were qualified for the task(s)
- O No, but they were performing the task(s) under the direction and observation of a qualified individual
- O No, they were not qualified for the task(s) nor were they performing the task(s) under the direction and observation of a qualified individual

G8 – Other Incident Cause - *only one sub-cause can be picked from shaded left-hand column

☐ Miscellaneous	*1. Describe: ______
☐ Unknown	*2. Specify: O Investigation complete, cause of incident unknown O Still under investigation, cause of incident to be determined* *(*Supplemental Report required)*

PART H -- NARRATIVE DESCRIPTION OF THE INCIDENT | *(Attach additional sheets as necessary)*

***PART I – PREPARER AND AUTHORIZED SIGNATURE**

*Preparer's Name (type or print)

Preparer's Telephone Number

Preparer's Title (type or print)

Preparer's E-mail Address

Preparer's Facsimile Number

Authorized Signature

*Date

*Authorized Signature Telephone Number

*Authorized Signature's Name (type or print)

Authorized Signature's Title (type or print)

Authorized Signature's E-mail Address

Notice: This report is required by 49 CFR Part 191. Failure to report may result in a civil penalty not to exceed $100,000 for each violation for each day the violation continues up to a maximum of $1,000,000 as provided in 49 USC 60122.

Form Approved
OMB No. 2137-0522
Expires: 2/28/2014

U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration	ANNUAL REPORT FOR CALENDAR YEAR 20___ NATURAL AND OTHER GAS TRANSMISSION AND GATHERING PIPELINE SYSTEMS	INITIAL REPORT ☐ SUPPLEMENTAL REPORT ☐

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0522. Public reporting for this collection of information is estimated to be approximately 42 hours per response, including the time for reviewing instructions, gathering the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

Important: *Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the PHMSA Pipeline Safety Community Web Page at http://www.phmsa.dot.gov/pipeline/library/forms.*

PART A - OPERATOR INFORMATION	**DOT USE ONLY**
1. OPERATOR'S 5 DIGIT IDENTIFICATION NUMBER (OPID) / / / / / /	2. NAME OF OPERATOR: ________________________
3. RESERVED	4. HEADQUARTERS ADDRESS: ________________________ Company Name ________________________ Street Address State: / / / Zip Code: / / / / / / - / / / / /

5. THIS REPORT PERTAINS TO THE FOLLOWING COMMODITY GROUP: *(Select Commodity Group based on the predominant gas carried and complete the report for that Commodity Group. File a separate report for each Commodity Group included in this OPID.)*

☐ Natural Gas

☐ Synthetic Gas

☐ Hydrogen Gas

☐ Propane Gas

☐ Landfill Gas

☐ Other Gas → Name of Other Gas ____________

6. RESERVED

7. FOR THE DESIGNATED "COMMODITY GROUP", THE PIPELINES AND/OR PIPELINE FACILITIES INCLUDED WITHIN THIS OPID ARE: *(Select one or both)*

☐ INTERstate pipeline → List all of the States and OCS portions in which INTERstate pipelines and/or pipeline facilities included under this OPID exist: __, __, __, __, __, etc.

☐ INTRAstate pipeline → List all of the States in which INTRAstate pipelines and/or pipeline facilities included under this OPID exist: __, __, __, __, __, etc.

8. RESERVED

For the designated Commodity Group, PARTs B and D will be calculated based on the data entered in Parts L and P respectively. Complete Part C one time for all pipelines and/or pipeline facilities – both INTERstate and INTRAstate - included within this OPID.

PART B – TRANSMISSION PIPELINE HCA MILES	
	Number of HCA Miles
Onshore	*Calc*
Offshore	*Calc*
Total Miles	*Calc*

PART C - VOLUME TRANSPORTED IN TRANSMISSION PIPELINES (ONLY) IN MILLION SCF PER YEAR (excludes Transmission lines of Gas Distribution systems)	**☐ Check this box and do not complete PART C if this report only includes gathering pipelines or transmission lines of gas distribution systems.**	
	Onshore	**Offshore**
Natural Gas		
Propane Gas		
Synthetic Gas		
Hydrogen Gas		
Landfill Gas		
Other Gas → Name: ______________		

PART D - MILES OF PIPE BY MATERIAL AND CORROSION PREVENTION STATUS

	Steel cathodically protected		Steel cathodically unprotected							
	Bare	Coated	Bare	Coated	Cast Iron	Wrought Iron	Plastic	Composite[1]	Other	Total Miles
Transmission										
Onshore	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Offshore	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Subtotal Transmission	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Gathering										
Onshore Type A	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Onshore Type B	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Offshore	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Subtotal Gathering	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Total Miles	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*

[1] Use of Composite pipe requires a PHMSA Special Permit or waiver from a State

PART E - RESERVED

For the designated Commodity Group, complete PARTs F and G one time for all INTERstate pipeline facilities included within this OPID and multiple times as needed for the designated Commodity Group for each State in which INTRAstate pipeline facilities included within this OPID exist. Part F "WITHIN AN HCA SEGMENT" data and Part G may be completed only if HCA Miles in Part L is greater than zero.

PARTs F and G

The data reported in these PARTs applies to: *(select only one)*

☐ **Interstate pipelines/pipeline facilities**

☐ **Intrastate pipelines/pipeline facilities in the State of /__/__/** *(complete for each State)*

PART F - INTEGRITY INSPECTIONS CONDUCTED AND ACTIONS TAKEN BASED ON INSPECTION	
1. MILEAGE INSPECTED IN CALENDAR YEAR USING THE FOLLOWING IN-LINE INSPECTION (ILI) TOOLS	
a. Corrosion or metal loss tools	
b. Dent or deformation tools	
c. Crack or long seam defect detection tools	
d. Any other internal inspection tools, specify other tools:	
e. Total tool mileage inspected in calendar year using in-line inspection tools. (Lines a + b + c + d)	*Calc*
2. ACTIONS TAKEN IN CALENDAR YEAR BASED ON IN-LINE INSPECTIONS	
a. Based on ILI data, total number of anomalies excavated in calendar year because they met the operator's criteria for excavation.	
b. Total number of anomalies repaired in calendar year that were identified by ILI based on the operator's criteria, both within an HCA Segment and outside of an HCA Segment.	
c. Total number of conditions repaired WITHIN AN HCA SEGMENT meeting the definition of:	*Calc*
1. "Immediate repair conditions" [192.933(d)(1)]	
2. "One-year conditions" [192.933(d)(2)]	
3. "Monitored conditions" [192.933(d)(3)]	
4. Other "Scheduled conditions" [192.933(c)]	
3. MILEAGE INSPECTED AND ACTIONS TAKEN IN CALENDAR YEAR BASED ON PRESSURE TESTING	
a. Total mileage inspected by pressure testing in calendar year.	
b. Total number of pressure test failures (ruptures and leaks) repaired in calendar year, both within an HCA Segment and outside of an HCA Segment.	
c. Total number of pressure test ruptures (complete failure of pipe wall) repaired in calendar year WITHIN AN HCA SEGMENT.	
d. Total number of pressure test leaks (less than complete wall failure but including escape of test medium) repaired in calendar year WITHIN AN HCA SEGMENT.	

(PART F continued)

4. MILEAGE INSPECTED AND ACTIONS TAKEN IN CALENDAR YEAR BASED ON DA (Direct Assessment methods)	
a. Total mileage inspected by each DA method in calendar year.	*Calc*
1. ECDA	
2. ICDA	
3. SCCDA	
b. Total number of anomalies identified by each DA method and repaired in calendar year based on the operator's criteria, both within an HCA Segment and outside of an HCA Segment.	*Calc*
1. ECDA	
2. ICDA	
3. SCCDA	
c. Total number of conditions repaired in calendar year WITHIN AN HCA SEGMENT meeting the definition of:	*Calc*
1. "Immediate repair conditions" [192.933(d)(1)]	
2. "One-year conditions" [192.933(d)(2)]	
3. "Monitored conditions" [192.933(d)(3)]	
4. Other "Scheduled conditions" [192.933(c)]	
5. MILEAGE INSPECTED AND ACTIONS TAKEN IN CALENDAR YEAR BASED ON OTHER INSPECTION TECHNIQUES	
a. Total mileage inspected by inspection techniques other than those listed above in calendar year. Specify other inspection technique(s):	
b. Total number of anomalies identified by other inspection techniques and repaired in calendar year based on the operator's criteria, both within an HCA Segment and outside of an HCA Segment.	
c. Total number of conditions repaired in calendar year WITHIN AN HCA SEGMENT meeting the definition of:	*Calc*
1. "Immediate repair conditions" [192.933(d)(1)]	
2. "One-year conditions" [192.933(d)(2)]	
3. "Monitored conditions" [192.933(d)(3)]	
4. Other "Scheduled conditions" [192.933(c)]	
6. TOTAL MILEAGE INSPECTED (ALL METHODS) AND ACTIONS TAKEN IN CALENDAR YEAR	
a. Total mileage inspected in calendar year. (Lines 1.e + 3.a + 4.a.1 + 4.a.2 + 4.a.3 + 5.a)	*Calc*
b. Total number of anomalies repaired in calendar year both within an HCA Segment and outside of an HCA Segment. (Lines 2.b + 3.b + 4.b.1 + 4.b.2 + 4.b.3 + 5.b)	*Calc*
c. Total number of conditions repaired in calendar year WITHIN AN HCA SEGMENT. (Lines 2.c.1 + 2.c.2 + 2.c.3 + 2.c.4 + 3.c + 3.d + 4.c.1 + 4.c.2 + 4.c.3 + 4.c.4 + 5.c.1 + 5.c.2 + 5.c.3 + 5.c.4)	*Calc*
d. Total number of actionable anomalies eliminated by pipe replacement in calendar year WITHIN AN HCA SEGMENT:	
e. Total number of actionable anomalies eliminated by pipe abandonment in calendar year WITHIN AN HCA SEGMENT:	

PART G– MILES OF BASELINE ASSESSMENTS AND REASSESSMENTS COMPLETED IN CALENDAR YEAR (HCA Segment miles ONLY)	
a. Baseline assessment miles completed during the calendar year.	
b. Reassessment miles completed during the calendar year.	
c. Total assessment and reassessment miles completed during the calendar year.	*Calc*

For the designated Commodity Group, complete PARTs H, I, J, K, L, M, P, Q, and R covering INTERstate pipeline facilities for each State in which INTERstate systems exist within this OPID and again covering INTRAstate pipeline facilities for each State in which INTRAstate systems exist within this OPID.

PARTs H, I, J, K, L, M, P, Q, and R

The data reported in these PARTs applies to: ***(select only one)***

☐ **Interstate pipelines/pipeline facilities in the State of /__/__/** *(complete for each State)*

☐ **Intrastate Pipelines/pipeline facilities in the State of /__/__/** *(complete for each State)*

PART H - MILES OF TRANSMISSION PIPE BY NOMINAL PIPE SIZE (NPS)

Onshore	NPS 4 or less	6	8	10	12	14	16	18	20
	22	24	26	28	30	32	34	36	38
	42	44	46	48	52	56	58 and over		
	Other Pipe Sizes Not Listed								
	Size: __ Miles: ________ *Add Sizes as needed*								
Calc	Total Miles of Onshore Pipe - Transmission								
Offshore	NPS 4 or less	6	8	10	12	14	16	18	20
	22	24	26	28	30	32	34	36	38
	42	44	46	48	52	56	58 and over		
	Other Pipe Sizes Not Listed								
	Size: __ Miles: ________ *Add Sizes as needed*								
Calc	Total Miles of Offshore Pipe - Transmission								

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PART I - MILES OF GATHERING PIPE BY NOMINAL PIPE SIZE (NPS)

Onshore Type A	NPS 4 or less	6	8	10	12	14	16	18	20
	22	24	26	28	30	32	34	36	38
	42	44	46	48	52	56	58 and over		
	Other Pipe Sizes Not Listed								
	Size: __ Miles: ________ *Add Sizes as needed*								
Calc	Total Miles of Onshore Type A Pipe - Gathering								
Onshore Type B	NPS 4 or less	6	8	10	12	14	16	18	20
	22	24	26	28	30	32	34	36	38
	42	44	46	48	52	56	58 and over		
	Other Pipe Sizes Not Listed								
	Size: __ Miles: ________ *Add Sizes as needed*								
Calc	Total Miles of Onshore Type B Pipe - Gathering								
Offshore	NPS 4 or less	6	8	10	12	14	16	18	20
	22	24	26	28	30	32	34	36	38
	42	44	46	48	52	56	58 and over		
	Other Pipe Sizes Not Listed								
	Size: __ Miles: ________ *Add Sizes as needed*								
Calc	Total Miles of Offshore - Gathering								

PART J – MILES OF PIPE BY DECADE INSTALLED

Decade Pipe Installed	Unknown	Pre-1940	1940 - 1949	1950 - 1959	1960 - 1969	1970 - 1979	1980 - 1989
Transmission							
Onshore							
Offshore							
Subtotal Transmission	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Gathering							
Onshore Type A							
Onshore Type B							
Offshore							
Subtotal Gathering	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Total Miles	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*

Decade Pipe Installed	1990 - 1999	2000 - 2009	2010 - 2019	Total Miles
Transmission				
Onshore				*Calc*
Offshore				*Calc*
Subtotal Transmission	*Calc*	*Calc*	*Calc*	*Calc*
Gathering				
Onshore Type A				*Calc*
Onshore Type B				*Calc*
Offshore				*Calc*
Subtotal Gathering	*Calc*	*Calc*	*Calc*	*Calc*
Total Miles	*Calc*	*Calc*	*Calc*	*Calc*

PART K- MILES OF TRANSMISSION PIPE BY SPECIFIED MINIMUM YIELD STRENGTH

ONSHORE	CLASS LOCATION				Total Miles
	Class I	Class 2	Class 3	Class 4	
Steel pipe Less than 20% SMYS					*Calc*
Steel pipe Greater than or equal to 20% SMYS but less than30% SMYS					*Calc*
Steel pipe Greater than or equal to 30% SMYS but less than or equal to 40% SMYS					*Calc*
Steel pipe Greater than 40% SMYS but less than or equal to 50% SMYS					*Calc*
Steel pipe Greater than 50% SMYS but less than or equal to 60% SMYS					*Calc*
Steel pipe Greater than 60% SMYS but less than or equal to 72% SMYS					*Calc*
Steel pipe Greater than 72% SMYS but less than or equal to 80% SMYS					*Calc*
Steel pipe Greater than 80% SMYS					*Calc*
Steel pipe Unknown percent of SMYS					*Calc*
All Non-Steel pipe					*Calc*
Onshore Totals	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
OFFSHORE	Class I				
Steel pipe Less than or equal to 50% SMYS					
Steel pipe Greater than 50% SMYS but less than or equal to 72% SMYS					
Steel pipe Greater than 72% SMYS					
Steel pipe Unknown percent of SMYS					
All non-steel pipe					
Offshore Total	*Calc*				
Total Miles	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*

APPENDIX D

PART L - MILES OF PIPE BY CLASS LOCATION

	Class Location				Total Class Location Miles	HCA Miles
	Class I	Class 2	Class 3	Class 4		
Transmission						
Onshore	*Calc from Part K*	*Calc from Part K*	*Calc from Part K*	*Calc from Part K*	*Calc*	
Offshore	*Calc from Part K*				*Calc*	
Subtotal Transmission	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Gathering						
Onshore Type A					*Calc*	
Onshore Type B					*Calc*	
Offshore					*Calc*	
Subtotal Gathering	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	
Total Miles	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*

APPENDIX D

PART M – FAILURES, LEAKS, AND REPAIRS

PART M1 – ALL LEAKS ELIMINATED/REPAIRED IN CALENDAR YEAR; FAILURES IN HCA SEGMENTS IN CALENDAR YEAR

Cause	Transmission Leaks and Failures						Gathering Leaks		
		Leaks				Failures in HCA Segments	Onshore Leaks		Offshore Leaks
		Onshore Leaks		Offshore Leaks					
		HCA	Non-HCA	HCA	Non-HCA		Type A	Type B	
External Corrosion									
Internal Corrosion									
Stress Corrosion Cracking									
Manufacturing									
Construction									
Equipment									
Incorrect Operations									
Third Party Damage/Mechanical Damage									
Excavation Damage									
Previous Damage (due to Excavation Activity)									
Vandalism (includes all Intentional Damage)									
Weather Related/Other Outside Force									
Natural Force Damage (all)									
Other Outside Force Damage (excluding Vandalism and all Intentional Damage)									
Other									
Total		*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*

PART M2 – KNOWN SYSTEM LEAKS AT END OF YEAR SCHEDULED FOR REPAIR

Transmission		Gathering	

PART M3 – LEAKS ON FEDERAL LAND OR OCS REPAIRED OR SCHEDULED FOR REPAIR

Transmission		Gathering	
Onshore		Onshore Type A	
		Onshore Type B	
OCS		OCS	
Subtotal Transmission	*Calc*	Subtotal Gathering	*Calc*
Total	*Calc*		

PART P - MILES OF PIPE BY MATERIAL AND CORROSION PREVENTION STATUS

	Steel cathodically protected		Steel cathodically unprotected							
	Bare	Coated	Bare	Coated	Cast Iron	Wrought Iron	Plastic	Composite[1]	Other[2]	Total Miles
Transmission										
Onshore										*Calc*
Offshore										*Calc*
Subtotal Transmission	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Gathering										
Onshore Type A										*Calc*
Onshore Type B										*Calc*
Offshore										*Calc*
Subtotal Gathering	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Total Miles	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*

[1] Use of Composite pipe requires a PHMSA Special Permit or waiver from a State
[2] specify Other material(s):

Part Q - Gas Transmission Miles by §192.619 MAOP Determination Method

	(a)(1) Total	(a)(1) Incomplete Records	(a)(2) Total	(a)(2) Incomplete Records	(a)(3) Total	(a)(3) Incomplete Records	(a)(4) Total	(a)(4) Incomplete Records	(c) Total	(c) Incomplete Records	(d) Total	(d) Incomplete Records	Other[1] Total	Other Incomplete Records
Class 1 (in HCA)														
Class 1 (not in HCA)														
Class 2 (in HCA)														
Class 2 (not in HCA)														
Class 3 (in HCA)														
Class 3 (not in HCA)														
Class 4 (in HCA)														
Class 4 (not in HCA)														
Total	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*

Sum of Total row for all "Total" columns	*Calc*
Sum of Total row for all "Incomplete Records" columns	*Calc*
Grand Total	*Calc*

[1] Specify Other method(s): ____________

Part R – Gas Transmission Miles by Pressure Test (PT) Range and Internal Inspection

	PT ≥ 1.25 MAOP		1.25 MAOP > PT ≥ 1.1 MAOP		PT < 1.1 or No PT	
Location	Miles Internal Inspection ABLE	Miles Internal Inspection NOT ABLE	Miles Internal Inspection ABLE	Miles Internal Inspection NOT ABLE	Miles Internal Inspection ABLE	Miles Internal Inspection NOT ABLE
Class 1 in HCA						
Class 2 in HCA						
Class 3 in HCA						
Class 4 in HCA						
in HCA subTotal	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Class 1 not in HCA						
Class 2 not in HCA						
Class 3 not in HCA						
Class 4 not in HCA						
not in HCA subTotal	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*
Total	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*	*Calc*

PT ≥ 1.25 MAOP Total	*Calc*
1.25 MAOP > PT ≥ 1.1 MAOP Total	*Calc*
PT < 1.1 or No PT Total	*Calc*
Grand Total	*Calc*

For the designated Commodity Group, complete PART N one time for all of the pipelines and/or pipeline facilities included within this OPID, and then also PART O if any gas transmission pipeline facilities included within this OPID have Part L HCA mile value greater than zero.

PART N - PREPARER SIGNATURE

____
Preparer's Name(type or print)

/__/__/__/-/__/__/__/-/__/__/__/__/
Telephone Number

____
Preparer's Title

____
Preparer's E-mail Address

PART O - CERTIFYING SIGNATURE (applicable to PARTs B, F, G, and M1)

____
Senior Executive Officer's signature certifying the information in PARTs B, F, G, and M as required by 49 U.S.C. 60109(f)

/__/__/__/-/__/__/__/-/__/__/__/__/
Telephone Number

____
Senior Executive Officer's name certifying the information in PARTs B, F, G, and M as required by 49 U.S.C. 60109(f)

____
Senior Executive Officer's title certifying the information in PARTs B, F, G, and M as required by 49 U.S.C. 60109(f)

____
Senior Executive Officer's E-mail Address