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File #: 176154

September 2, 2022

VIA ELECTRONIC FILING

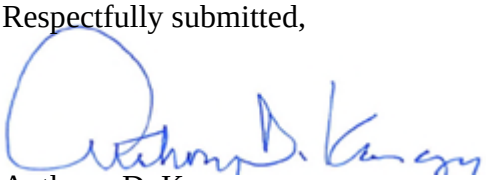
Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Petition of National Fuel Gas Distribution Corporation For Approval Of A Long-Term Infrastructure Improvement Plan For The Period January 1, 2023 Through December 31, 2027
Docket No. P-2022-

Dear Secretary Chiavetta:

Attached for filing please find the Petition of National Fuel Gas Distribution Corporation For Approval Of A Long-Term Infrastructure Improvement Plan For The Period January 1, 2023 Through December 31, 2027 in the above-referenced proceeding. Copies will be provided per the attached Certificate of Service.

Respectfully submitted,



Anthony D. Kanagy

ADK/kls
Attachment

cc: Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

VIA E-MAIL AND FIRST-CLASS MAIL

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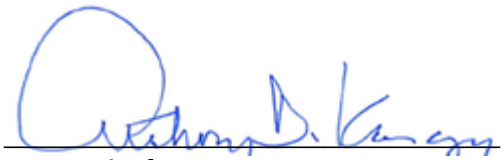

Anthony D. Kanagy

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Petition of National Fuel Gas Distribution Corporation For Approval Of A Long-Term Infrastructure Improvement Plan For The Period January 1, 2023 Through December 31, 2027	:	Docket No. P-2022-_____

PETITION OF NATIONAL FUEL GAS DISTRIBUTION CORPORATION FOR APPROVAL OF A LONG-TERM INFRASTRUCTURE IMPROVEMENT PLAN

Pursuant to Act 11 of 2012 ("Act 11" or the "Act"), which amended Chapters 3, 13 and 33 of the Pennsylvania Public Utility Code ("Code"), National Fuel Gas Distribution Corporation ("National Fuel" or the "Company") hereby files this Petition for approval of a Long-Term Infrastructure Improvement Plan ("LTIIP") for the period January 1, 2023 through December 31, 2027. This filing is also being made pursuant to the *Final Implementation Order* of the Pennsylvania Public Utility Commission (the "Commission") entered at Docket No. M-2012-2293611 on August 2, 2012,[1] and the Commission's regulations at 52 Pa. Code § 121.1 *et. seq.*

National Fuel employs a risk-based system modernization process to help ensure safe and reliable delivery of natural gas service to its customers. As explained herein, National Fuel's LTIIP will build upon the Company's use of its risk model and the existing System Modernization Program ("SMP"), by guiding the Company's accelerated repair and replacement of its distribution system in its Pennsylvania service territory. Under the accelerated schedule, the Company anticipates the replacement of all bare steel and wrought iron pipe by 2039 as opposed to 2046 under its current replacement schedule.

[1] *Implementation of Act 11 of 2012*, Docket No. M-2012-2293611 (Order entered Aug. 2, 2012) ("*Final Implementation Order*").

By this Petition, the Company respectfully requests that the Commission approve National Fuel's LTIIP, which is attached hereto as Attachment "1".

I. INTRODUCTION AND BACKGROUND

1. National Fuel is a "public utility" and a "natural gas distribution company" ("NGDC") as those terms are defined in Sections 102 and 2202 of the Code, 66 Pa. C.S. §§ 102, 2202. National Fuel owns property in Pennsylvania for the transmission and distribution of natural gas and provides natural gas distribution service to approximately 215,000 customers over 4,917 miles of pipe in various communities in the counties of Armstrong, Butler, Cameron, Clarion, Clearfield, Crawford, Elk, Erie, Forest, Jefferson, McKean, Mercer, Venango and Warren, Pennsylvania.

2. The names, addresses and telephone number of National Fuel's attorneys for the purposes of this filing are as follows:

Anthony D. Kanagy, Esquire (PA ID #85522)
Garrett P. Lent, Esquire (PA ID #321566)
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National Fuel's attorneys are authorized to receive all notices and communications regarding this filing. In addition, National Fuel requests that a courtesy copy of all notices and communications regarding this matter be sent to Randy C. Rucinski, Esquire, via e-mail at rucinskir@natfuel.com.

3. Act 11 of 2012 ("Act 11") authorizes NGDCs to establish a Distribution Service Improvement Charge ("DSIC"). *See* 66 Pa.C.S. § 1353. NGDCs may implement a DSIC to recover reasonable and prudent costs incurred to repair, improve or replace certain eligible

property that is part of the utility's distribution system. Eligible property for NGDCs is defined in Section 1351 of the Public Utility Code. *See* 66 Pa.C.S. § 1351(2). As a precondition to establishing or continuing a DSIC, each utility must file and maintain an LTIIP with the Commission that is consistent with the provisions of Section 1352 (66 Pa.C.S. § 1352(a)) and 52 Pa. Code § 121.3.

4. On August 2, 2012, the Commission issued a *Final Implementation Order* establishing procedures and guidelines necessary to implement Act 11.[2] The *Final Implementation Order* adopted the requirements established in Section 1352, provided additional standards that each LTIIP must meet, and guided utilities on meeting the Commission's standards. The standards and guidance adopted in the *Final Implementation Order* are reflected in Chapter 121 of the Commission's regulations. *See* 52 Pa. Code § 121.1 *et. seq.*

5. Specifically, 66 Pa C.S. § 1352 and 52 Pa. Code § 121.3(a) provide that the LTIIP must include the following eight major elements:

> (1) Identification of types and age of eligible property owned and operated by the utility for which it is seeking DSIC recovery.
>
> (2) An initial schedule for planned repair and replacement of eligible property.
>
> (3) A general description of location of eligible property.
>
> (4) A reasonable estimate of quantity of eligible property to be improved or repaired.
>
> (5) Projected annual expenditures and means to finance the expenditures.
>
> (6) A description of the manner in which infrastructure replacement will be accelerated and how repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service to customers.

[2] *See* footnote 1 *supra*.

> (7) A workforce management and training program designed to ensure that the utility will have access to a qualified workforce to perform work in a cost-effective, safe and reliable manner.
>
> (8) A description of a utility's outreach and coordination activities with other utilities, Department of Transportation and local governments regarding the planned maintenance/construction projects and roadways that may be impacted by the LTIIP.

6. National Fuel's LTIIP addresses each of the elements identified in 66 Pa.C.S. § 1352 and 52 Pa. Code § 121.3(a), as summarized in this Petition, and therefore should be approved.

II. NATIONAL FUEL'S LONG-TERM INFRASTRUCTURE IMPROVEMENT PLAN

A. BACKGROUND

7. In accordance with 66 Pa.C.S. § 1352 and 52 Pa. Code § 121.3(a), National Fuel's LTIIP includes only distribution plant that is DSIC-eligible. National Fuel has been identifying and repairing, improving, or replacing its distribution infrastructure, consistent with its SMP, as well as its Distribution Integrity Management Program ("DIMP") and its Transmission Integrity Management Program ("TIMP") as outlined in Subpart P of 49 C.F.R. Part 192 – Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards. National Fuel's LTIIP embraces the pre-existing process and accelerates the schedule that the Company has been using to replace and improve its infrastructure.

8. Table 13 of the LTIIP demonstrates that the Company will accelerate average replacement mileage and investment by approximately 27.8% and 64.3%, compared to the historic five year-year average. Table 13 is reproduced below.

Table 13: Average Replacement and Investment Acceleration

	2017 - 2021 Average	LTIIP Average	% Increase
Replacement Mileage (miles)	41.3 miles	52.8 miles	27.8 %
Modernization Spending ($MM)	$23.8 MM	$39.1 MM	64.3 %

9. National Fuel's LTIIP will allow the Company to continue to provide safe and reliable service into the future. The accelerated replacements contemplated by the LTIIP will make the system safer, more reliable, and easier to operate. National Fuel will install additional safety devices in areas to be upgraded. This includes excess flow valves, which will shut off gas to a residence or business in the event of a large pressure differential, which is typically indicative of a major gas leak or a service damaged by excavation. It will also include curb valves, which allow National Fuel to isolate a service line completely from the source of gas in the event of a failure on the service line. Furthermore, the DSIC will allow National Fuel to remove aging portions of its system and enhance the safety of its system by ensuring replacement of facilities with new, longer lasting and safer materials. As a result, the public will receive improved service, with decreased risk of service disruption.

B. TYPES AND AGE OF ELIGIBLE PROPERTY

10. Construction materials used for natural gas pipelines have evolved since the first pipelines in National Fuel's system were constructed, and many of the legacy materials and methods used for constructing pipelines have subsequently been found to have a greater likelihood of requiring replacement as they age. National Fuel's distribution and transmission mainlines have been installed over multiple decades and are comprised of many different types of materials including unprotected bare steel, unprotected coated steel, protected bare steel, protected coated steel, wrought iron, and plastic.

11. In the oldest portions of National Fuel's distribution system, wrought iron and bare steel were used because at the time of construction each was considered strong and less vulnerable to breakage than cast iron.[3] Over time, the industry learned that wrought iron was vulnerable to breakage due to pressure and stress from ground movement, and bare steel was subject to corrosion. Finally, as the industry moved to the use of plastic piping starting in the 1970s, certain plastic materials used early in the process have shown a vulnerability to stress propagation cracking.

12. As explained in the LTIIP, as of December 31, 2021, approximately 29% of the Company's existing distribution mainlines is comprised of pipelines installed prior to 1970. This pre-1970 vintage pipe is comprised primarily of wrought iron and bare steel pipe. In addition, as of December 31, 2021, approximately 68% of the Company's existing transmission mainlines are comprised of pipeline installed prior to 1970. This pre-1970 vintage pipe is comprised primarily of bare steel.

13. While National Fuel does not replace distribution or transmission pipeline strictly based on the age of the facility or the material involved, these are factors considered in the Company's risk model and SMP. The SMP is designed to identify and prioritize pipeline replacements on a system-wide basis using a comprehensive planning process and planning tools, including the Company's Geographic Information System ("GIS") and the Company's Distribution Risk Application. The Company's LPP Replacement Program is designed to ensure the safety and reliability of its system and to control leakage rates by prioritizing pipeline replacements system-wide.

[3] The Company's distribution system does not contain any cast iron pipe.

14. In addition to the accelerated replacement of the highest risk pipe as a part of its LTIIP, National Fuel will be replacing associated distribution equipment and installing additional safety and monitoring equipment that is compatible with the upgraded design. National Fuel will install excess flow valves, will replace and potentially relocate meters, and will replace risers, meter bars, regulator stations, farm taps and service regulators.

15. All of the facilities included in National Fuel's LTIIP are considered "eligible property" under Section 1351(2).

C. SCHEDULE FOR REPAIR AND REPLACEMENT

16. National Fuel's schedule for infrastructure improvement is set forth on pages 16-18 of its LTIIP. The Company anticipates replacing 264 miles of LPP over the proposed five-year LTIIP period ending in 2027. The Company's anticipated retirement schedule also anticipates the LTIIP will allow for the retirement of all bare steel and wrought iron pipe by 2039.

D. LOCATION OF ELIGIBLE PROPERTY

17. The facilities that will be the target of the accelerated replacement and improvement are located throughout the 14 counties that make up National Fuel's certificated service territory in Pennsylvania. A map showing these locations is provided on page 19 of the LTIIP.

E. QUANTITY OF PROPERTY TO BE IMPROVED

18. The total estimated quantity of property to be improved on National Fuel's distribution system over the term of the LTIIP is described on pages 20-21 of its LTIIP. The Company anticipates replacing and/or retiring 232 miles of LPP distribution pipe and 32 miles of LPP transmission pipe over the five-year LTIIP term.

19. National Fuel's primary focus in its accelerated main replacement program, utilizing the prioritization factors identified in its LTIIP, is replacing its wrought iron and bare steel pipe which are most susceptible to failure from corrosion, cracks and leakage.

20. In addition to the replacement of mains, National Fuel also anticipates replacing other associated eligible facilities as described in its LTIIP.

F. PROJECTED ANNUAL EXPENDITURES AND MEASURES TO ENSURE THE LTIIP IS COST EFFECTIVE

21. National Fuel's projected annual budget is presented on page 23 of its LTIIP. The Company's projected annual investments in infrastructure improvement and replacement will be approximately $34.1 Million beginning in fiscal year 2023, and will accelerate commensurate with the anticipated acceleration of the replacement of LPP. The Company expects to spend $45.8 Million in fiscal year 2027.

22. The Company assesses its system each year using the risk model SMP. The SMP was developed to control unit costs and maximize LPP replacement, and is used in coordination with the risk model to maximizes efficiencies and minimizes costs by addressing large segments of the system, and carrying out replacements on a planned, systemic basis. This ensures that National Fuel is targeting the highest risk pipe while maximizing the efficient use of its capital and resources.

23. In addition to the SMP, the Company controls costs by using multiple qualified contractors and competitive bidding procedures. At the conclusion of bid projects, the Company also performs a "Post Investment Analysis" to compare bid estimates to actual cost and quantities installed. Any significant variances are identified and reviewed with a goal of reducing future variances. Finally, the Company tracks and reports unit cost trends to executive management in an "Annual Unit Cost Study."

G. ACCELERATED REPLACEMENT

24. In *its Final Implementation Order*, the Commission noted that utilities should reflect and maintain an acceleration of infrastructure replacement. The Commission also noted

that some utilities have already taken substantial steps towards increasing capital investment to address the issue of aging infrastructure. For those utilities, the Commission requested that the LTIIP "reflect how the DSIC will maintain or augment acceleration of infrastructure replacement and prudent capital investment." *Final Implementation Order* at 19.

25. While the replacement of infrastructure will be accelerated, the Company's risk-based approach to project prioritization will remain. National Fuel's current and future methodology for accelerated replacement is to focus the available capital budget on the highest risk projects system wide to ensure the greatest risk reduction per dollar spent. The LTIIP is being implemented to further accelerate the replacement of the riskiest pipe in National Fuel's system, and replace or remediate this pipe sooner than it would be if the LTIIP were not in place.

26. National Fuel will accelerate the replacement of LPP beginning in 2023. Starting in 2023, National Fuel will replace 48 miles of LPP, which is a 6.7 mile increase from the prior five-year average. The proposed replacements of LPP will continue to increase to 57 miles in 2027. Over the proposed period for this LTIIP (FY 2023-2027), the Company will replace an average of 52.8 miles of pipe per year. Compared to the historic five-year average (FY 2017-2021) of 41.3 miles of pipe per year, this equates to a 38% acceleration in the replacement of LPP.

27. Starting in 2023, proposed annual modernization spending associated with the accelerated replacement of LPP will rise to $34.1 Million. A large component of this spending will go towards accelerated replacement of transmission and high-pressure mains over 124 psi. Capital investments will continue to increase along with accelerated replacement of LPP through 2027, where the Company expects to spend $45.8 Million. Over the proposed period for this LTIIP (FY 2023-2027), the Company will invest an average of $39.1 Million to modernize its system.

Compared to the historic five-year average (FY 2017-2021) of $23.8 Million per year, this equates a 64.3% acceleration in the Company's capital investments to modernize its system.

28. The manner in which National Fuel will continue to accelerate its infrastructure repair and replacement, as well as the impact that this work has had and will continue to have on safety and reliability, is described on pages 25-31 of the LTIIP.

H. WORKFORCE MANAGEMENT AND TRAINING PROGRAM

29. A workforce management and training plan is a required part of the LTIIP. 52 Pa. Code § 121.3(a)(7); *Final Implementation Order* at 17-18. A description of National Fuel's workforce management and training plans are found on pages 32-35 of the LTIIP, and its Pennsylvania Operator Qualification Written Plan is included as Appendix A to the LTIIP. National Fuel's workforce is comprised of both employees who work directly for the Company, and workers hired by contractors of the Company. National Fuel utilizes a wide variety of extensive training and qualification programs before work is done on any National Fuel pipeline facilities.

30. National Fuel conducts an Operator Qualification Compliance Program, ensuring that personnel performing critical tasks on all pipeline facilities have the necessary knowledge, skills and abilities. This program includes more than 60 identified tasks, with many sub-parts within tasks, requiring extensive training, testing and qualification verification.

31. National Fuel also currently utilizes Quality Assurance ("QA") auditors, who, along with local operations supervision, will perform field assessments to ensure the continued competency of an individual to perform a covered task(s) or subtask(s). Should an individual's competency be in question, the Company has a deficiency review process in place that allows for the suspension of an individual's qualification for a covered task(s) or subtask(s) pending further investigation.

I. OUTREACH AND COORDINATION ACTIVITIES

32. National Fuel has described its coordination and outreach activities in its LTIIP, consistent with 52 Pa. Code § 121.3(a)(8). The Company has a long-standing and active outreach program coordinating with local municipalities and other utilities on construction projects to minimize duplication of restoration efforts and disruptions to local customers or residents. The municipal outreach program allows for clear communication of information about natural gas distribution system safety, design and operations, as well as information regarding upcoming facility improvement projects. Coordination with municipal governments minimizes disruptions to residents in the area of proposed construction, enables efficient replacement of facilities, and promotes awareness of construction projects being performed around National Fuel's infrastructure. The Company's approach to outreach and coordination is fully described on pages 36-38 of the LTIIP.

III. EVIDENTIARY HEARINGS AND SERVICE

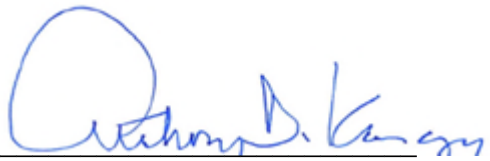
33. Neither Act 11 nor the Commission's *Final Implementation Order* and regulations requires a hearing on the LTIIP. If National Fuel's LTIIP is set for hearings, the Company will file written direct testimony that supports its explanation of how the LTIIP was developed, and how it meets the requirements outlined in the Commission's *Final Implementation Order* and the Commission's regulations.

34. Pursuant to the Commission's regulations at 52 Pa. Code § 121.4(a), National Fuel is serving the LTIIP on the statutory advocates, and all of the parties of record in the Company's most recent base rate proceeding at Docket No. R-00061493.

IV. CONCLUSION

WHEREFORE, National Fuel Gas Distribution Corporation respectfully requests that the Pennsylvania Public Utility Commission approve this Long-Term Infrastructure Improvement Plan for the Period January 1, 2023 through December 31, 2027.

Respectfully submitted,



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Date: September 2, 2022

Counsel for National Fuel Gas Distribution Corporation

Attachment 1

National Fuel Gas Distribution Corporation

Long Term Infrastructure Improvement Plan

September 2, 2022

Table of Contents

National Fuel Gas Distribution Corporation
Long-Term Infrastructure Improvement Plan

I. Introduction

In compliance with requirements of 66 Pa. C.S. § 1352(a) and the Commission's regulations, 52 Pa. Code § 121.1 *et. seq.*), National Fuel Gas Distribution Corporation ("National Fuel", "Distribution", or the "Company") respectfully submits its Long-Term Infrastructure Improvement Plan ("LTIIP" or "Plan") covering the period of 2023 through 2027 with the Pennsylvania Public Utility Commission (the "Commission").

The LTIIP shall guide the Company's accelerated repair and replacement of its distribution system in its Pennsylvania service territory. As detailed here within the plan, the Company provides information in response to the Commission's eight required elements.

II. Background

Headquartered in Williamsville, New York, National Fuel delivers natural gas to more than 749,000 residential, commercial, and industrial customers in Western New York and Northwest Pennsylvania through its nearly 14,825 mile pipeline system. Specifically in Pennsylvania, approximately 215,000 customers are served through 4,917 miles of pipeline.

III. LTIIP Requirements

1. Identification of types and age of eligible property owned and operated by the utility for which it is seeking DSIC recovery.

- Gas Distribution and Transmission Mains, Valves, Fittings, Couplings, and Appurtenances
- Gas Service Lines, Excess Flow Valves (EFVs), Curb Valves, Meter Sets, Risers, Meter Bars, Meters, and Appurtenances
- City Gate Stations, District Regulator Stations, Production Stations, Telemetry, Overpressure Protection, and Regulator Station Appurtenances
- Farm Taps
- System Reliability Improvements
- Vintage Plastic Replacements
- Mandated Facility Relocations due to highway/city/township/municipal projects (unreimbursed costs)
- Other Related Capitalized Costs – Equipment, Tools, Corrosion Control Equipment, Vehicles, Supporting Information Technology, and Appurtenances

National Fuel's plan to upgrade this eligible property within the pipeline system will help to maintain safe and adequate service while containing operations and maintenance costs. The Company will continue to employ a risk-based system modernization process to continue delivering safe and reliable natural gas service to its approximately 215,000 residential, commercial, and industrial customers in Northwestern Pennsylvania.

Gas Distribution and Transmission Mains, Valves, Fittings, and Couplings

National Fuel's distribution and transmission mainlines have been installed over multiple decades and are comprised of many different types of materials including Unprotected Bare Steel, Unprotected Coated Steel, Protected Bare Steel, Protected Coated Steel, Wrought Iron, and Plastic. Table 1 below shows the location of eligible distribution mainline in each of National Fuel's Responsibility Centers (RCs) / Operating Areas categorized by pipeline material.

Table 1: National Fuel's Location of Eligible Property – Distribution Main[1]

Miles of Distribution Main as of December 31st, 2021								
Responsibility Center (RC)	**Unprotected Bare Steel**	**Unprotected Coated Steel**	**Protected Bare Steel**	**Protected Coated Steel**	**Wrought Iron**	**Plastic**	**Other**	**Total**
RC311 Erie	201.5	2.4	0.0	118.7	5.4	681.2	0.6	1,009.8
RC312 West County	91.1	0.0	10.1	90.6	0.7	286.8	0.0	479.3
RC314 Warren	26.4	0.0	0.0	57.5	5.3	214.7	0.0	303.9
RC317 Corry	22.3	0.0	0.0	17.4	0.9	76.8	0.0	117.5
RC323 Bradford	9.1	0.0	0.0	46.0	6.6	142.3	0.0	204.0
RC326 Clarion	27.3	0.1	0.0	28.4	10.5	123.0	0.0	189.2
RC327 Chicora	2.2	0.0	4.8	36.6	5.6	126.3	0.0	175.5
RC329 Dubois	23.4	0.0	0.0	76.4	6.4	190.3	0.0	296.5
RC332 Elk	28.3	0.4	2.7	71.6	8.9	248.9	0.0	360.9
RC344 Meadville	60.5	0.0	46.2	90.5	9.6	262.4	0.0	469.3
RC347 Oil City	82.1	0.0	20.1	69.3	46.9	339.4	0.0	557.8
RC350 Sharon	137.0	0.7	0.1	143.3	20.9	384.7	0.0	686.6
Total	711.1	3.7	84.1	846.3	127.8	3,076.8	0.6	4,850.4

[1] **Due to rounding, values shown in Tables 1 through 4 may differ slightly from Annual DOT Reporting**

National Fuel's existing distribution mainline assets as of December 31, 2021 consist of unprotected bare steel (~15%), unprotected coated steel (< 1%), protected bare steel (~2%), protected coated steel (~17%), wrought iron (~3%), plastic pipeline (~63%), and a small portion of other (epoxy fiberglass) main (< 1%). Table 2 below shows the age profile of eligible distribution mainline throughout National Fuel's territory.

Table 2: National Fuel's Age Profile of Eligible Property – Distribution Main[1]

Age Profile of Distribution Main as of December 31st, 2021	
Decade of Installation	**Miles**
Pre-1940	341.4
1940's	85.8
1950's	360.9
1960's	603.2
1970's	694.6
1980's	820.2
1990's	801.4
2000's	495.1
2010's	470.8
2020's	77.4
Unknown	99.7
Total	4,850.4

Nearly 29%, or 1,391 miles, of National Fuel's existing distribution mainlines, as of December 31, 2021, is comprised of pipelines installed prior to 1970. National Fuel does not replace pipeline strictly based on the age of the facility; however, older pipeline is generally comprised of vintage material which is a factor considered in the Company's risk model and System Modernization Program (SMP). Distribution main is considered DSIC eligible property as defined in 66 Pa. C.S. § 1351(2)(i), 1351(2)(ii), and 1351(2)(iv).

Table 3 below shows the location of eligible transmission main in each of National Fuel's Responsibility Centers sorted by pipeline material.

Table 3: National Fuel's Location of Eligible Property – Transmission Main[1]

Miles of Transmission Main as of December 31st, 2021			
Responsibility Center (RC)	**Protected Bare Steel**	**Protected Coated Steel**	**Total**
RC311 Erie	0.0	3.6	3.6
RC312 West County	20.3	7.8	28.0
RC314 Warren	0	0	0
RC317 Corry	2.3	0.0	2.3
RC323 Bradford	0	0	0
RC326 Clarion	0	0	0
RC327 Chicora	0	0	0
RC329 Dubois	0	0	0
RC332 Elk	0	0	0
RC344 Meadville	3.6	2.1	5.7
RC347 Oil City	11.1	15.7	26.8
RC350 Sharon	0	0	0
Total	37.3	29.2	66.4

National Fuel's existing transmission main, as of December 31, 2021, consists of protected bare steel (~56%) and protected coated steel (~44%). Table 4 below shows the age profile of eligible transmission main throughout National Fuel's territory.

Table 4: National Fuel's Age Profile of Eligible Property – Transmission Main[1]

Age Profile of Transmission Main as of December 31st, 2021	
Decade of Installation	**Miles**
Pre-1950	0.0
1950's	37.1
1960's	8.3
1970's	0.1
1980's	7.4
1990's	7.4
2000's	0.3
2010's	3.8
2020's	2.0
Total	66.4

Approximately 68%, or 45 miles, of National Fuel's existing transmission main, as of December 31, 2021, is comprised of pipeline installed prior to 1970. Like distribution main, National Fuel does not replace pipeline strictly based on the age of the facility, however older transmission main is typically comprised of bare steel which is a factor considered in the Company's risk model and SMP. Transmission main is considered DSIC eligible property as defined in 66 Pa. C.S. § 1351(2)(i), 1351(2)(ii), and 1351(2)(iv).

Gas Service Lines, Excess Flow Valves (EFVs), Curb Valves, Meter Sets, Risers, Meter Bars, Meters, and Appurtenances

National Fuel's service lines are distribution lines that transport gas from a common source of supply to an individual customer, to two adjacent or adjoining residential or small commercial customers, or to multiple residential or small commercial customers served through a meter header or manifold. A service line ends at the outlet

of the customer meter or at the connection to a customer's piping, whichever is further downstream. National Fuel owns all of the service lines in its service territory.

EFVs and/or curb valves may be installed on newer gas service lines directly downstream of the mainline tap as a safety measure in the event of service line damage. The EFV will automatically prevent gas from flowing through the service line if there is a failure of the service between the mainline and meter. When the gas flow through the EFV exceeds a designated rate, the valve automatically closes and stops all, or a major portion, of the gas flow.

Curb valves allow National Fuel to isolate the service line completely from the source of gas in the event of failure on the service line. Other eligible property included on National Fuel's service lines includes, but is not limited to, line taps, risers, meter bars, meters, and meter set piping. National Fuel owns and operates 193,636 service lines as of December 31, 2021, as shown in Table 5 below.

Table 5: National Fuel's Location of Eligible Property – Service Lines

Service Lines by Material as of December 31st, 2021				
Responsibility Center (RC)	**Bare Steel**	**Coated Steel**	**Plastic**	**Total**
RC311 Erie	5,353	671	56,747	62,771
RC312 West County	373	929	16,325	17,627
RC314 Warren	908	277	8,719	9,904
RC317 Corry	208	184	4,420	4,812
RC323 Bradford	172	144	5,308	5,624
RC326 Clarion	679	470	5,426	6,575
RC327 Chicora	102	145	2,943	3,190
RC329 Dubois	706	434	9,868	11,008
RC332 Elk	808	187	11,575	12,570
RC344 Meadville	1,654	855	12,491	15,000
RC347 Oil City	2,156	731	14,445	17,332
RC350 Sharon	3,752	1,337	22,134	27,223
Total	16,871	6,364	170,401	193,636

National Fuel's existing services, as of December 31, 2021, were comprised of 8.7% bare steel pipeline, 3.3% coated steel pipeline, and 88% plastic pipeline. The majority of existing services are comprised of plastic or bare steel. The bare steel pipeline services are considered early vintage material and as a result have a higher risk factor when evaluating replacement projects. Table 6 below shows the age profile of eligible service lines throughout National Fuel's territory.

Table 6: National Fuel's Age Profile of Eligible Property – Service Lines

Age Profile of Service Lines as of December 31st, 2021	
Decade of Installation	**Number of Services**
Pre-1940	6,036
1940's	1,808
1950's	4,873
1960's	7,789
1970's	26,853
1980's	34,755
1990's	40,717
2000's	34,440
2010's	30,013
2020's	6,339
Unknown	13
Total	193,636

Gas services are not replaced based strictly on material or age; however, the service line material and age are factors considered in the Company's SMP, with all associated bare steel services being replaced in connection with main replacement. Gas service lines, insulated and non-insulated fittings, valves, excess flow valves, risers, meter bars, and meters are considered DSIC eligible property as defined in 66 Pa. C.S. § 1351(2)(iii), 1351(2)(iv), 1351(2)(v), 1351(2)(vi), 1351(2)(vii), and 1351(2)(viii).

City Gate Stations, District Regulator Stations, Production Stations, Telemetry, Overpressure Protection, and Measurement Stations

National Fuel owns and operates 875 meter and regulator (M&R) stations as of December 31, 2021. Table 7 below shows the breakdown of regulator stations throughout National Fuel's territory.

Table 7: National Fuel's Location of Eligible Property – M&R Stations

M&R Stations as of December 31st, 2021	
Responsibility Center (RC)	**Regulator Stations**
RC311 Erie	125
RC312 West County	45
RC314 Warren	46
RC317 Corry	14
RC323 Bradford	37
RC326 Clarion	41
RC327 Chicora	27
RC329 Dubois	68
RC332 Elk	74
RC344 Meadville	123
RC347 Oil City	147
RC350 Sharon	128
Total	875

M&R stations are inspected annually to ensure safe and reliable operation. In order to maintain communication with various key stations throughout its distribution system, National Fuel operates and maintains different forms of telemetry and monitoring devices including, but not limited to, Supervisory Control and Data Acquisition (SCADA) and other forms of remote pressure monitoring.

National Fuel transports natural gas from multiple local producers throughout its service area. It is the responsibility of the producer to ensure that gas quality standards specified in National Fuel's tariff are met prior to injection into National Fuel's system. Therefore, the producer typically owns and operates any dehydrators, dryers, filters, separators, and regulation equipment at production stations. National Fuel owns and operates certain equipment downstream of the production regulation equipment, this typically includes, but is not limited to, meters, correctors, valving, odorization equipment, and overpressure protection devices.

Overpressure protection at regulator stations is typically in the form of monitor regulators, control valves, or full capacity relief valves. Immediately following the Merrimack Valley over-pressurization incident in 2018, National Fuel identified worker-monitor stations feeding low-pressure distribution systems without full capacity relief valves throughout its territory and began implementing a plan to upgrade the stations by either installing a full capacity relief valve or retiring stations through system improvements. While monitor regulators are compliant under the Code of Federal Regulations Title 49 Part 192.195 as a form of overpressure protection, National Fuel has and will continue to take steps to upgrade these stations to eliminate the potential common mode of failure presented by worker-monitor stations to protect the distribution system from over-pressurization as outlined in the Protecting Our Infrastructure of Pipelines and Enhancing Safety (PIPES) Act of 2020. As of September 2, 2022, National Fuel has upgraded 100 of its 162 identified worker-monitor stations feeding low-pressure

distribution systems. Relief valves are considered DSIC eligible property as defined in 66 Pa. C.S. § 1351(2)(iv).

Farm Taps

National Fuel defines farm taps as service lines that are directly connected to either a transmission pipeline or regulated gathering pipeline that is not operated as part of a distribution system. National Fuel owns and operates farm taps throughout its service territory. Farm tap equipment includes, but is not limited to, service taps, service lines, risers, regulation equipment, over pressure protection equipment, valving, and meters.

System Reliability Improvements (System Reliability Reports – SRRs)

National Fuel uses SRRs to identify operational concerns resulting from or caused by natural forces, other outside forces, equipment failures, incorrect operations, or other threats to National Fuel's pipeline system, M&R stations, and other pipeline facilities.

Upon discovery of a reliability concern, National Fuel documents and tracks the discovery and nature of the reliability concern as well as the immediate response and proposed long-term corrections. The SRR is received by National Fuel's Integrity Engineering Department and routed throughout Engineering, Operations, and other appropriate departments for determination of potential remediation options. National Fuel has utilized third party experts for assistance in developing remediation options to not only remediate immediate reliability concerns, but also prevent similar occurrences in the future. Once a remediation option has been agreed upon by all appropriate

Company personnel, National Fuel assembles a project team and moves forward with the remediation until completion. In many cases, an essential part of the long-term corrections is to monitor the remediation for a period of time, typically one year, after completion to ensure the system reliability issue has been permanently corrected and the system is safe for future operation. Company personnel review SRRs system-wide on a periodic basis until completion.

National Fuel's SRR identification and tracking process outlined above ensures continuous improvement of pipeline reliability and safety throughout its system.

Vintage Plastic Replacements

As outlined above, more than half of National Fuel's distribution system is comprised of plastic pipeline. Existing fusions and mechanical couplings excavated during the normal course of business are visually inspected for defects or other integrity concerns. When a visually questionable fusion or non-pullout resistant coupling is discovered, it is cut out and submitted to National Fuel's Engineering Department for analysis. Visually questionable fusions (including leaking fusions) and non-pullout resistant couplings are documented and evaluated further for remediation options. The Engineering Department analyzes visually questionable fusions and non-pullout resistant couplings and may recommend accelerated actions. Visually questionable fusions, fusion leaks, non-pullout resistant couplings, and plastic failures are documented and tracked for replacement or patrolling on either National Fuel's Plastic Pipeline Special Survey (PPSS) list or Plastic System Integrity Report (PSIR).

Remediation of fusion leaks and visually questionable fusions or non-pullout resistant couplings includes a review of as-built records to determine the number and possible locations of fusions on the project. Aerial photography is reviewed to determine the proximity of buildings. Based on the records review and the number of fusions on the job, additional fusion or coupling inspections or removal of known remaining fusions or couplings may be directed. Segments are placed on the PSIR and are leak surveyed quarterly until remedial actions are complete. Segments on the PPSS are leak surveyed semi-annually (typically April and October) until the segment is replaced or all known fusions are removed. In addition to quarterly reviews and semi-annual leak surveys, all identified PPSS and PSIR projects are reviewed twice annually at Spring and Fall construction planning meetings held at each responsibility center.

National Fuel's vintage plastic identification and tracking process outlined above ensures continuous improvement of pipeline reliability and safety throughout its system.

Mandated Facility Relocations

National Fuel is periodically required to relocate facilities to accommodate highway and other public improvement projects. National Fuel maintains a steady stream of communication with cities, municipalities, townships, and the Department of Transportation within its territory to coordinate projects and relocations to minimize impacts. The Company sends annual letters to all municipalities and highway departments within the Company's service area, requesting information on planned infrastructure improvements (see Appendix B). Mandated facility relocations are either

reimbursable or non-reimbursable depending on whether the gas facilities in conflict are located within public or private right-of-way. The unreimbursed portion of these costs is DSIC eligible as defined in 66 Pa. C.S. § 1351(2)(ix).

Other Related Capitalized Costs

The replacement and maintenance of the eligible property listed above typically results in additional costs related to but not limited to equipment, tools, corrosion control equipment, vehicles, and supporting information technology. These related costs are DSIC eligible property as defined in 66 Pa. C.S. § 1351(2)(x).

2. An initial schedule for planned repair and replacement of eligible property

The Company has designed and developed its SMP to identify and prioritize pipeline replacements on a system-wide basis using a comprehensive planning process and planning tools, including its Geographic Information System (GIS) and its Distribution Risk Application. Each Fall, at the conclusion of the annual leak survey cycle, the Company utilizes its GIS to perform a geographic leak analysis of the entire distribution system to identify areas of concentrated leakage. This analysis assigns a risk factor to each area based on the number and grade of leaks. The Company's Engineering and Operations management then review maps of higher priority areas during bi-annual planning meetings held at each operating location, to identify potential pipeline replacement projects for further development. The planning meetings also identify any system reliability concerns and potential conflicts with planned highway and municipal construction work. A review of standing agenda items ensures that all relevant system issues are considered in the Company's SMP for the upcoming construction season.

In addition to the Company's SMP, the Company's Leak Prone Pipe (LPP) Replacement Program is robust and carefully designed to ensure the safety and reliability of its system and to control leakage rates by prioritizing pipeline replacements system-wide. LPP can be defined as pipelines that are more susceptible to leakage based on the material (including bare steel, wrought iron, and historic plastics with known issues), design, or past operating and maintenance history of the pipeline. Since 2016, the Company has made significant and consistent progress in this effort, having eliminated

207 miles of its leak prone bare steel and wrought iron mains and 4,581 of its bare steel services under its SMP. Table 8 below shows the Company's calendar year end mileage of bare steel main, wrought iron main, and bare steel service count over the last five years.

Table 8: Bare Steel and Wrought Iron Mileage & Bare Steel Services (2016-2021)

Bare Steel & Wrought Iron Mileage & Bare Steel Services (2016-2021)		
Year	**CY End Mainline Miles**	**CY End Bare Steel Services**
2016	1,183	21,452
2017	1,103 [2]	20,441
2018	1,065	19,518
2019	1,028	18,581
2020	978	17,758
2021	935	16,871

It is anticipated that the Company will replace approximately 40 miles of distribution bare steel & wrought iron mainline pipe in 2022. Table 9 below provides the total miles of distribution and transmission LPP (bare steel, wrought iron, and historic plastics with known issues) that the Company plans to replace during each year following the filing of its initial LTIIP (2022).

Table 9: Leak Prone Pipe Replacement (2022-2027)

Pennsylvania **Leak Prone Pipe Replacement - 5 year plan**						
	CY 2022	**CY 2023**	**CY 2024**	**CY 2025**	**CY 2026**	**CY 2027**
LPP Reduction	Miles	Miles	Miles	Miles	Miles	Miles
Distribution < 124 psig	40	44	45	46	47	50
Transmission & High Pressure > 124 psig	0	4	7	7	7	7
Total	40	48	52	53	54	57

The table above shows the Company's initial mileage replacement ramp-up from 40 miles in CY 2022 to 48 miles in CY 2023 (including 44 miles of distribution main and 4

[2] **Adjusted for 41.594 miles corrected during 2018 records review; Pipe classified as bare but identified as coated**

miles of transmission pipe & high pressure main) as well as subsequent acceleration in replacement through 2027. Figure 1 below shows the Company's remaining bare steel and wrought iron at the end of each calendar year between 2022 and 2027. The Company's retirement schedule outlined in Section 2 of this LTIIP will allow for the retirement of all bare steel and wrought iron pipe by 2039.

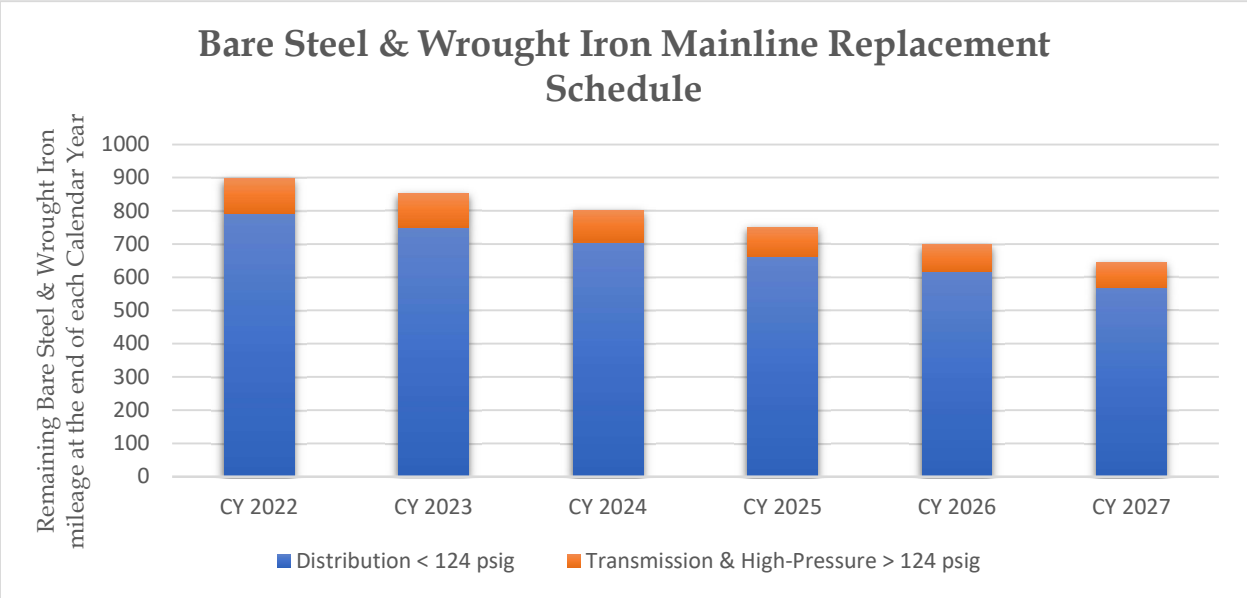

Figure 1: Bare Steel & Wrought Iron Main Replacement Schedule (2022-2027)

The SMP outlined above is consistent with National Fuel's Distribution Integrity Management Program (DIMP) as well as its Transmission Integrity Management Program (TIMP) as defined in Subpart P of 49 C.F.R. Part 192 – Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards. The purpose of National Fuel's DIMP and TIMP is to enhance safety by identifying and mitigating risks to the Company's gas distribution & transmission system.

3. A general description of location of eligible property

National Fuel's eligible property is located throughout its service territory in Northwestern Pennsylvania. This eligible property is located in Armstrong, Butler, Cameron, Clarion, Clearfield, Crawford, Elk, Erie, Forest, Jefferson, McKean, Mercer, Potter, Venango, and Warren Counties. Figure 2 below depicts the location of National Fuel's service territory.

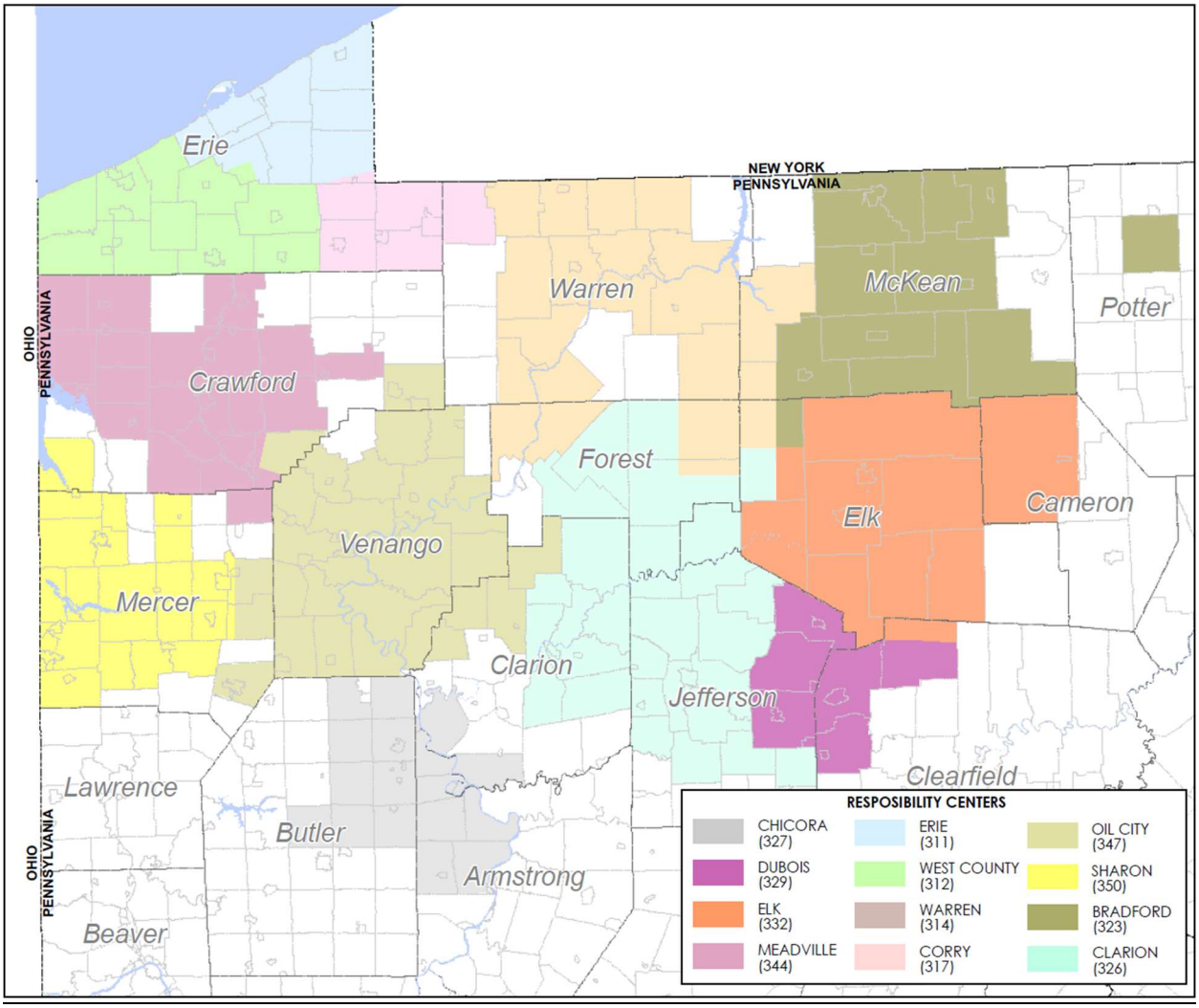

Figure 2: National Fuel's Distribution Service Territory

4. A reasonable estimate of quantity of eligible property to be improved or repaired

The Company expects to replace approximately 40 miles of bare steel and wrought iron main in 2022. The following table shows estimated quantities of eligible property to be improved under this LTIIP. For the next 5 years, the Company anticipates accelerating replacement annually.

Table 10: Estimate of Quantity of Property to be Improved

Eligible Property	2023	2024	2025	2026	2027
Distribution Main (miles)	44	45	46	47	50
HP Distribution / Transmission Main (miles)	4	7	7	7	7
Service Lines and Meter Sets	As part of its pipeline main replacement program, the Company replaces all steel service lines (bare and coated) that are attached to the main being replaced. The Company may also replace plastic service lines during main replacement. This is done to enhance the safety of difficult to locate services, when required to facilitate relocating meters outside (i.e. where the existing service entry will not accommodate an outside meter location), or when the service line is comprised of vintage plastic.				
Meter and Regulator Stations	Replacements, upgrades, and repairs to stations and related equipment as needed to ensure safe and reliable service. Accelerated actions are prescribed based on the likelihood and potential consequences of a future concern.				
Farm Taps	Replacements, upgrades, and repairs to farm taps as needed to ensure safe and reliable service. In some instances, a new main and service will be installed as opposed to replacing the existing taps.				

System Reliability Improvements	Threats to the pipeline in the categories of natural force damage (primarily washouts and exposures), equipment failure, other outside force damage, incorrect operation, gas quality, and other causes to the distribution system.
Vintage Plastic	Plastic system leaks and reported visually questionable fusions or non-pullout resistant couplings.
Highway and Other Public Improvement Projects	Existing facilities required to be relocated due to conflicts with other utilities or government entities as needed. Coordinate pipeline replacement projects with municipal projects so that the Company may relocate facilities in advance of construction when warranted.
Other Related Capitalized Costs	As needed, invest in equipment, tools, corrosion control, vehicles, and supporting information technology to replace, repair and upgrade the eligible property described in this LTIIP.

5. Projected annual expenditures and means to finance the expenditures

Table 11 below shows the budgeted and actual capital expenditures related to the modernization of pipelines (including mainline and services), M&R stations, cathodic protection, associated costs for land/land rights, and supporting software for the fiscal years of 2017 through 2021. For the past five years, the Company budgeted a total of $118.4MM. During this same period, the Company's actual spending was $118.9MM, resulting in a difference of 0.4%. This negligible difference in budgeted versus actual spending shows the Company's consistent and cost-effective capital execution.

Table 11: Annual Capital Expenditures Related to Modernization

Fiscal Year	Capital Expenditures	
	FY Budget ($MM)	FY Actual ($MM)
2017	$20.0	$19.8
2018	$22.2	$20.5
2019	$24.1	$25.2
2020	$26.4	$24.8
2021	$25.7	$28.7
Total	**$118.4**	**$118.9**

For the current fiscal year, 2022, the Company has budgeted $25.4MM for modernization. Table 12 below provides the projected annual expenditures under this LTIIP. For the years 2023 through 2027, the Company expects to spend approximately $195.6MM related to modernization of pipelines. This forecast represents an increase of 65% over the total spending from 2017 to 2021. The proposed budget will increase an average of 6.9% each year of the LTIIP compared with the prior year.

Table 12: Projected Annual Capital Expenditures Related to Modernization

Fiscal Year	Capital Expenditures
	FY Budget ($MM)
2023	$34.1
2024	$37.9
2025	$38.7
2026	$39.1
2027	$45.8
Total	**$195.6**

The Company finances capital requirements through cash from operations and a mix of short-term and long-term debt provided by its Parent Company, National Fuel Gas Company. The Company's short-term financing is provided through the Parent's Money Pool Agreement and long-term financing is subject to Commission authorization,[3] which currently permits up to $250MM of additional long-term debt typically issued as intercompany promissory notes tied to the Parent's long-term debt issuances. Cash from operations, in conjunction with our short and long-term financing options, provide ample liquidity to help meet ongoing capital needs.

The Company's philosophy with respect to its SMP was developed to control unit costs, thereby maximizing LPP replacement. In designing pipeline replacement projects, the Company looks to develop larger scope projects with better economies of scale than multiple smaller projects. The Company also maximizes medium-pressure replacements to reduce pipe size, which may allow insertion of new medium-pressure mains into the

[3] **PAPUC Docket S-2020-3020690 - Approved through 12/31/2023**

larger low-pressure mains being replaced, thus reducing excavation and restoration costs. Smaller diameter mains have lower unit costs in general, and medium pressure mains may eliminate the need for costly road crossings and tie-ins to establish back feeds that are required in low pressure systems. An additional benefit to expanding the medium pressure system is the relocation of gas meters from inside of homes and businesses to the outside, resulting in easier access for meter reading and less operation and maintenance expense. The Company also looks to maximize project retirement to installation ratios by avoiding cross country installations and installations across open areas where there are no customers.

In addition to its cost-effective design philosophy, the Company controls costs using multiple qualified contractors and competitive bidding procedures. The Company has a comprehensive contractor administration program which includes standard bid conditions and procedures as well as online bidding and invoicing for efficiency. Contractor invoices submitted for payment undergo multiple levels of review and approval to ensure that quantities invoiced are proper and consistent with bid documents. At the conclusion of bid projects, the Company performs a Post Investment Analysis to compare bid estimates to actual cost and quantities installed. Any significant variances are identified and reviewed with a goal of reducing future variances. Finally, the Company tracks and reports unit cost trends to executive management in an Annual Unit Cost Study.

6. A description of the manner in which infrastructure replacement will be accelerated and how repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service to customers.

Under this LTIIP, National Fuel will accelerate infrastructure replacement as described in the sections above. The accelerated replacement of aging infrastructure will help maintain safe, reliable, and economic service to customers. As outlined in the Company's DIMP and TIMP, National Fuel will maintain safety by identifying, reducing, and mitigating system integrity risks. Managing the integrity and reliability of the pipeline system has always been a primary goal for the Company with design, construction, operations and maintenance activities performed in compliance with, or exceedance of, state and federal gas safety codes. While the replacement of infrastructure will be accelerated, the Company's risk-based approach to project prioritization will remain. National Fuel's current and future methodology for accelerated replacement is to focus the available capital budget on the highest risk projects system wide to ensure the greatest risk reduction per dollar spent.

Acceleration

National Fuel will accelerate LPP replacement beginning in 2023 with 48 miles of replacement, a 6.7 mile increase from the prior 5-year average (2017 to 2021). As seen in Figure 3 below, proposed replacements will continue to increase through 2027 up to 57 miles. This equates to a 38% acceleration in the replacement of LPP. This increased

replacement will further reduce the risk on the system, improve service to customers and increase system reliability.

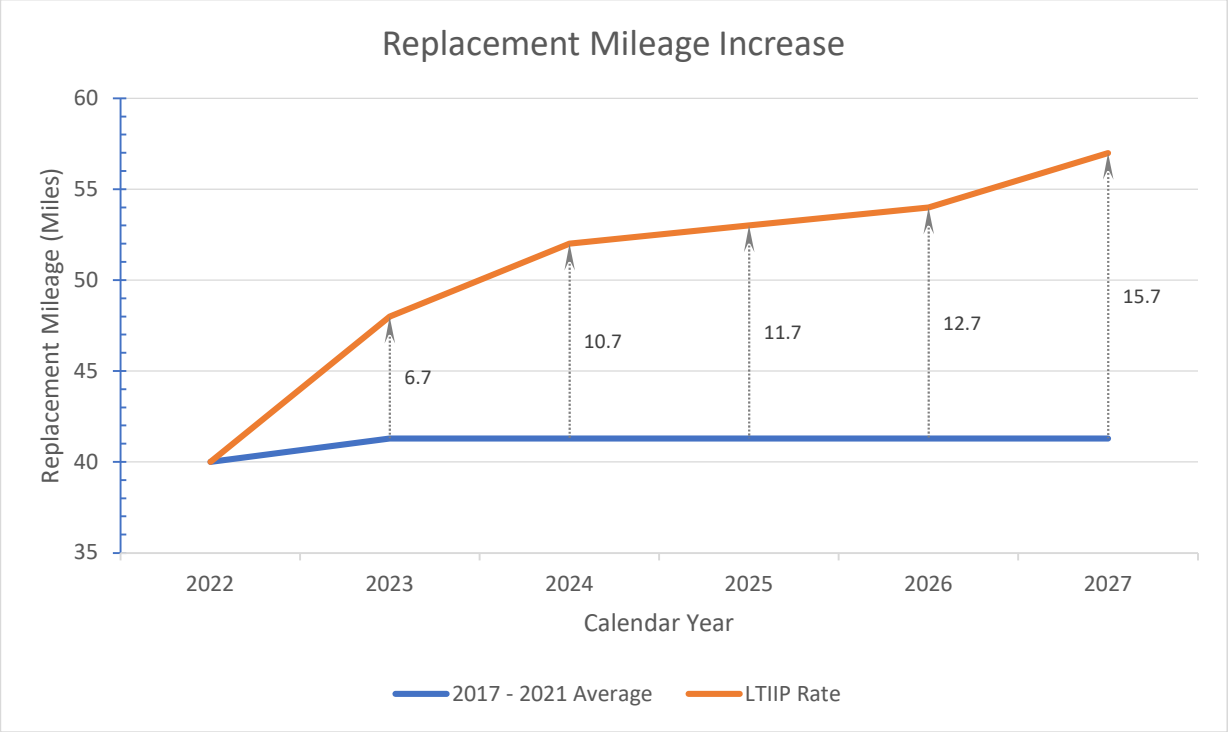

Figure 3: Replacement Mileage Increase

The Company will accelerate its capital expenditures related to the modernization of pipelines (including mainline and services), M&R stations, cathodic protection, associated costs for land/land rights, and supporting software for the fiscal years of 2023 through 2027 to fund increased infrastructure replacements. Starting in 2023, proposed annual modernization spending will rise to $34.1. This represents a $10.3MM increase from the previous 5-year annual average of $23.8MM. A large component of this spending will go towards accelerated replacement of transmission and high-pressure mains over 124 psi. Figure 4 shows the capital investments continuing to increase under

the LTIIP. In 2027, the Company expects to spend $45.8MM which is 92% higher than the 5-year annual average.

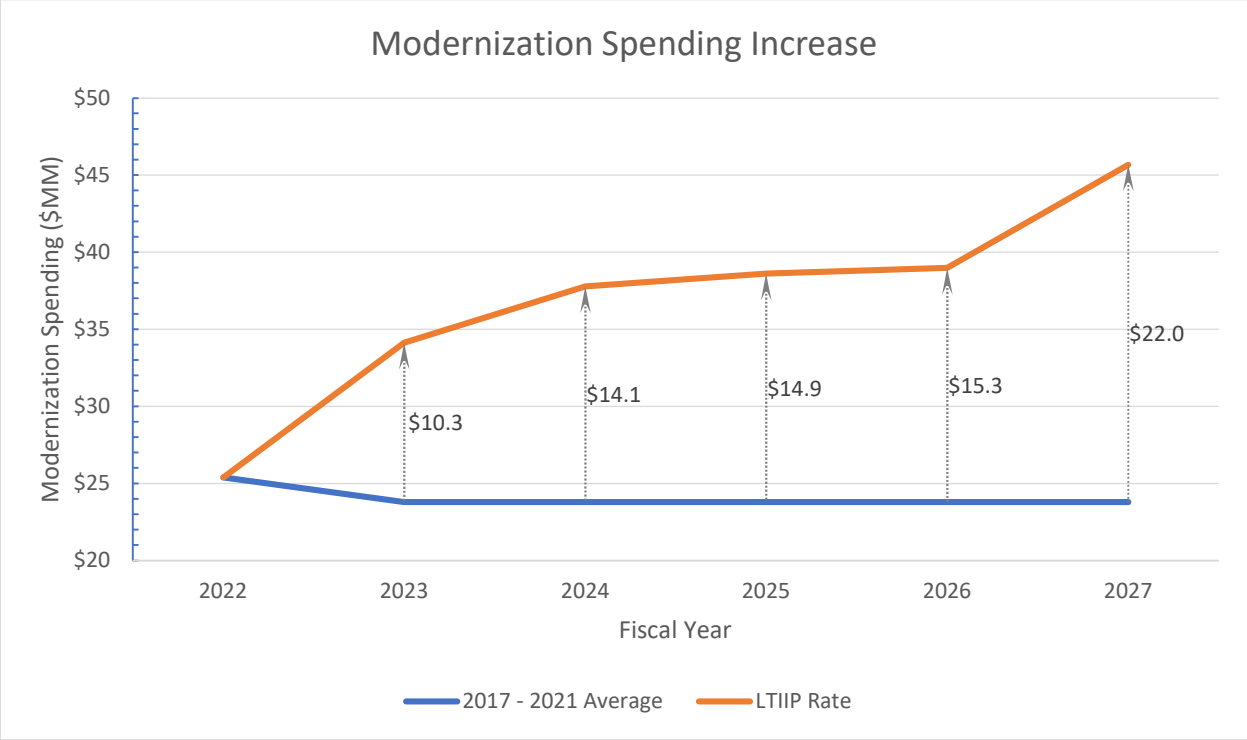

Figure 4: Modernization Spending Increase

Table 13 shows the proposed replacement mileage and modernization spending for the 5 years covered under the LTIIP compared with the previous 5-year period. As shown in the table, this acceleration results in a 27.8% increase in replacement miles and a 64.3% increase in modernization spending on average per year.

Table 13: Average Replacement and Investment Acceleration

	2017 - 2021 Average	LTIIP Average	% Increase
Replacement Mileage (miles)	41.3 miles	52.8 miles	27.8 %
Modernization Spending ($MM)	$23.8 MM	$39.1 MM	64.3 %

Safety

Safety is a guiding principle and top priority at National Fuel. National Fuel is committed to promoting and practicing a positive safety culture in all phases of the business. All employees, as well as contractors and suppliers providing services to National Fuel, are expected to place the highest priority on employee, customer, public and pipeline safety. The Company is fully committed to using the best tools, practices, and available data to enhance distribution pipeline safety and reduce risk on our system.

Public safety is of primary importance when considering pipeline replacement projects. Immediate safety concerns requiring pipe replacement are given top priority. In addition to addressing immediate safety concerns, pipeline replacement projects are identified to:

- Reduce risk
- Ensure system reliability
- Reduce leaks and greenhouse gas emissions
- Minimize unfeasible O&M repairs that are no longer cost effective or cause an undue inconvenience to customers
- Relocate facilities due to highway and municipal infrastructure improvement projects
- Reduce the risk of excavation damage

Figure 5 shows the total number of reported leaks per year by type. The total number of leaks is comprised of Type 1, Type 2, and Type 3 leaks. A Type 1 leak is a gas leak which, due to its location and/or relative magnitude, imposes a potentially

hazardous condition upon the public or buildings. Type 1 leaks require an immediate response to protect life and property. From the figure, it can be seen that reported Type 1 leaks have decreased by 15% between 2017 and 2021. A Type 2 leak is a gas leak that does not present an immediately hazardous condition to the public or buildings but is of a nature requiring scheduled repair. Type 2 leaks shall be repaired within a period not to exceed 12 months. As can be seen in Figure 5, reported Type 2 leaks have been reduced by 27% since 2017. A Type 3 leak is any leak that is not classified as a Type 1 or a Type 2 leak. Type 3 leaks have decreased by 33% since 2017. The clear reduction in reported leaks can be attributed to the Company's risk-based SMP. National Fuel expects that with an acceleration in replacement, a coinciding decrease in reported leaks will follow.

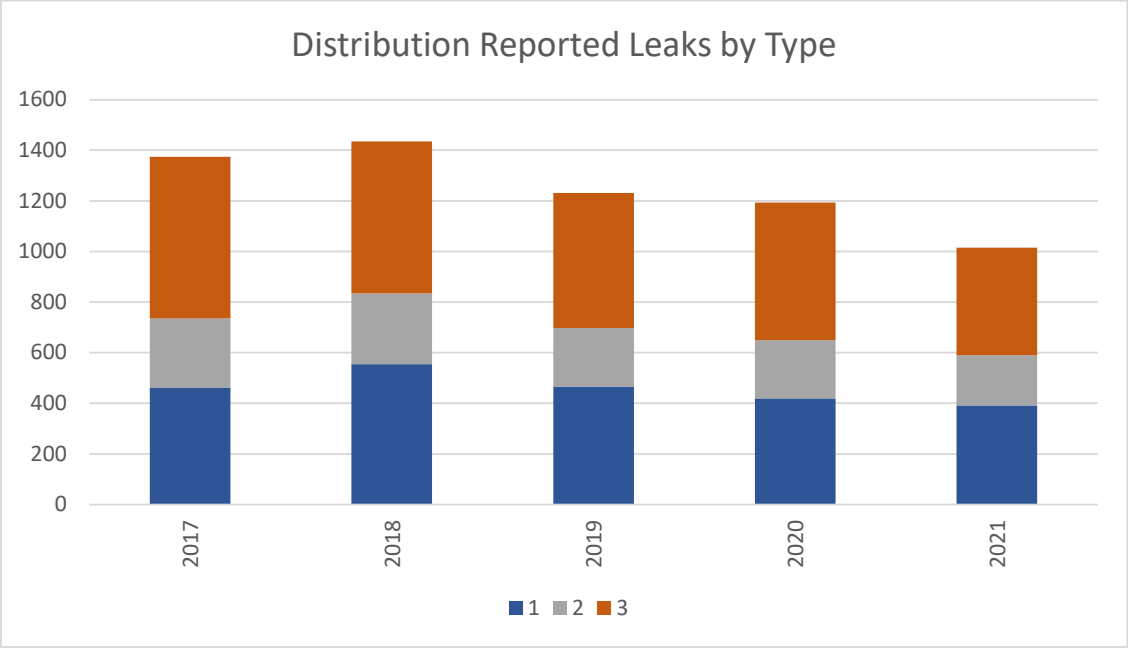

Figure 5: Distribution Reported Leaks by Type

The American Petroleum Institute (API) developed a safety management system standard specific to the pipeline industry. A Safety Management System (SMS) provides

a systematic approach to managing safety, including the processes, policies, and procedures an organization uses to direct and control its activities. Stakeholders from across the pipeline industry including operators, regulators, industry trade associations and safety experts representing the public collaborated in the development of API Recommended Practice (RP) 1173 on Pipeline Safety Management Systems (PSMS).

In 2019, the Company, along with AGA membership, committed to implementing an API RP 1173 compliant PSMS within three years. The Company first performed a gap analysis evaluating alignment of existing programs and procedures with API RP 1173 requirements, followed by the ongoing development of a web-based SMS to support our PSMS implementation. SMS development commenced in 2021 with a team of internal subject matter experts from a variety of functional areas working collaboratively with our SMS vendor. Modules focusing on corrective and preventative actions as well as surveys and inspections were developed first and will be followed by subsequent modules which will enable us to:

- Enhance inspections and observations of work activities to validate compliance with safety and work procedures
- Enhance safety event reporting including incidents, near misses and safety observations by employees and contractor personnel
- Facilitate root cause analysis and implementation of lessons learned from within our Company and our industry
- Track and report key performance indicators across all pipeline and employee safety programs
- Manage change throughout the organization using standardized workflows and action tracking

- Facilitate two-way safety communications with front line company and contractor personnel.

7. A workforce management and training program designed to ensure that the utility will have access to a qualified workforce to perform work in a cost-effective, safe and reliable manner.

To ensure that the Company can safely, reliably, and economically implement accelerated infrastructure improvement as described in this LTIIP, National Fuel will continue to utilize a trained and qualified workforce. Operating a safe and reliable pipeline system for our customers, employees and the public is our highest priority. National Fuel's system modernization work has and will continue to be completed by trained and qualified construction crews. This includes in-house crews, blanket contractor crews working under established unit price contracts, and bid contractor crews. By using a mix of in-house and contractor personnel, the Company can efficiently and cost effectively complete projects by using the appropriate resource.

Workforce Management

National Fuel consistently onboards new contractors to meet increasing infrastructure replacement mileage. Certain criteria are reviewed to ensure the highest quality contractors are performing work for the Company. These include, but are not limited to:

- Safety History (Injury and Illness Statistics, OSHA Citations, and Safety Programs)
- Drug and alcohol Compliance
- Criminal Background Checks
- Industry Referrals
- Financial Health

The Company regularly evaluates contractors' performance after each job for several metrics including:

- Job Safety
- Customer Sensitivity
- Construction
- Documentation
- Property Restoration
- Project Schedule

National Fuel Quality Assurance (QA) auditors, along with local Operations supervision, will perform field assessments to ensure the continued competency of an individual to perform a Covered Task(s) or Subtask(s). Should an individual's competency be in question there is a deficiency review process in place which will allow for the suspension of an individual's qualification for a Covered Task(s) or Subtask(s) pending further investigation.

Training and Operator Qualification Compliance Program

All in-house and contractor personnel performing work on pipeline facilities are required to undergo an extensive training and qualification program before working on any National Fuel pipeline facilities. Regular requalification with set intervals for the specific task is required to be maintained thereafter. Training and qualifications are completed through both classroom and hands-on training. National Fuel offers a multi-part training program which covers over 60 tasks:

- Basic Properties of Natural Gas
- Plastic Pipe Fusion / Mechanical Joining
- Construction Relight
- Corrosion / Purging
- Stopping / Tapping
- Leak Investigation / Leak Survey
- Customer Service

The U.S. Department of Transportation PHMSA regulations require operators to develop and maintain a written qualification program for individuals performing Covered Tasks. These regulations are detailed in Title 49 CFR 192, Subpart N: Qualification of Pipeline Personnel and are commonly known as Operator Qualification (OQ). The regulations are intended to promote safety and minimize human error by having qualified personnel who can perform work tasks safely and recognize and react to abnormal operating conditions.

Other than the prescriptive specifications for determining a Covered Task, the rule is performance based in that the operator has flexibility in the administration, application, and modification of the written operator qualification plan. Therefore, operators can establish appropriate guidelines that are specific to the operator's policies and procedures. The Operator Qualification Compliance Program Written Plan (Written Plan) was developed by the National Fuel Quality Assurance Department in conjunction with National Fuel Operations subject matter experts. This Written Plan can be found in Appendix A.

The Written Plan addresses the following aspects of the OQ Program: guidelines for identifying Covered Tasks; establishing an evaluation process, including intervals for subsequent evaluation and the role of training; utilizing non-qualified individuals in a Covered Task; post-incident evaluation of qualified personnel; re-evaluation of qualified personnel suspected of questionable performance; communication of significant changes to the OQ Program; recordkeeping; mutual assistance; revisions to Covered Tasks; abnormal operating conditions; retaining personnel qualifications during states of emergency and other critical processes.

The Company has implemented procedures to verify that personnel completing tasks on pipelines have current qualifications for the work being performed. Before a contractor bid job begins, OQs are provided by the contractor and verified by the company for any contractor employees working on the project. Blanket contractor OQs are verified through a daily location sheet, provided by the contractor, which lists the employees reporting to each job site. For company personnel, National Fuel Operations supervisors perform regular OQ checks for specific tasks to be performed. National Fuel expects all company and contractor employees to comply with training and OQ requirements to ensure a safe and reliable pipeline system.

8. **A description of a utility's outreach and coordination activities with other utilities, Department of Transportation and local governments regarding the planned maintenance/construction projects and roadways that may be impacted by the LTIIP.**

Utility Outreach and Coordination

National Fuel has a long-standing and active outreach program coordinating with local municipalities and other utilities on construction projects to minimize duplication of restoration efforts and disruptions to local customers or residents. A listing of municipal projects involving Company facilities is compiled and sent to the Company's Operations group with updates circulated on a regular basis. The status of outstanding projects is reviewed at the Company's yearly Spring and Fall Operations Planning Meetings. By reviewing these projects regularly, the Company ensures that proper planning and scheduling can take place with the third parties.

The Company sends annual letters to all municipalities and highway departments within the Company's service area, requesting information on planned infrastructure improvements. The letter contains a damage prevention message with a list of expected contractor/excavator responsibilities and a typical crossing/open trench detail with requirements when excavating around natural gas lines. See Appendix B for an example of this outreach letter.

In addition, National Fuel's Engineering Department reviews design tickets submitted through the Pennsylvania One-Call center. These notices are provided during the design phase for other utilities or larger construction projects. The purpose is to

attempt to identify and resolve conflicts with existing facilities during the planning stage of a project. Coordination with designers and appropriate scheduling of Company work is evaluated on a case-by-case basis to ensure efficiency during these projects.

National Fuel also sponsors and participates in One-Call awareness sessions conducted by the Pennsylvania One-Call System. National Fuel initiates sessions in areas where additional focus is needed. Sessions include emphasis on the public "call before you dig" message and safe digging around gas lines. The Company is represented on the Board of Directors of the Pennsylvania One-Call System, actively participating in public education, governmental affairs, and the One-Call System governance. In addition, National Fuel supports and/or participates in national, regional, and local committees promoting damage prevention (Common Ground Alliance (CGA), American Gas Association (AGA), Interstate Natural Gas Association of America (INGAA), Northeast Gas Association (NGA), Energy Association of Pennsylvania (EAP), local Damage Prevention Committees (DPCs)).

Public Awareness

The Company's Public Awareness program meets or exceeds the requirements of DOT CFR Part 192 Sections 192.7 and 192.616, – Public Awareness, and DOT CFR Part 192.111M Subpart O – Pipeline Integrity Management. National Fuel conducted a benchmark evaluation of its Public Awareness program in 2007. Subsequent effectiveness evaluations were conducted in 2011, 2014, 2018 and 2022. The study includes surveys of affected public, public officials, Emergency Management Service (EMS) officials, and excavators within the Company's service territory. The survey was designed to provide

input on gas pipeline safety including overall gas pipeline awareness, perceptions, attitudes, knowledge understanding behavior and gas safety program awareness.

National Fuel engages in, and facilitates, numerous public awareness and outreach programs. This is completed through advertising, public relations, Company website, community relations, and customer communications. Yearly communications on relevant safety topics are distributed to local stakeholders, including municipalities and contractors. These topics include, but are not limited to, cross bore infographics and letters, meter safety flyers, and emergency response letters detailing training opportunities. The Company also participates in local public relations activities which utilize press releases, social media postings, and local advertising (digital, radio, TV, and billboard) to increase awareness of pipeline activities and safety. National Fuel personnel participate annually in pipeline safety meetings conducted by Paradigm for the benefit of excavators and emergency responders. National Fuel also coordinates emergency responder trainings which are held at various Police and Fire Stations.

The extensive variety of public outreach and regional coordination undertaken by National Fuel has historically and will continue to ensure that Company facilities are operated in a safe and reliable manner. These activities are essential to the ongoing efforts to reduce the Company's inventory of LPP and increase system safety.

APPENDIX A
PENNSYLVANIA OPERATOR QUALIFICATION WRITTEN PLAN

National Fuel Pennsylvania Division Operator Qualification Compliance Program

Written Plan

September, 2019
November, 2019 Rev. A
February 11, 2021 Rev. B
May 14, 2021 Rev. B.1
February 18, 2022 Rev B.2

NFGDC-PA
NFGSUP-PA
Midstream

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NATIONAL FUEL OPERATOR QUALIFICATION COMPLIANCE PROGRAM WRITTEN PLAN

1.0 Overview

The U.S. Department of Transportation regulations require operators to develop and maintain a written qualification program for individuals performing Covered Tasks. These regulations are detailed in Title 49 CFR 192, Subpart N: Qualification of Pipeline Personnel and are commonly known as Operator Qualification (OQ). The regulations are intended to promote safety and minimize human error by having qualified personnel who are able to perform work tasks safely and recognize and react to abnormal operating conditions.

Other than the prescriptive specifications for determining a Covered Task, the rule is performance based in that the operator has flexibility in the administration, application, and modification of the written operator qualification plan. Therefore, operators can establish appropriate guidelines that are specific to the operator's policies and procedures.

The Operator Qualification Compliance Program Written Plan, hereafter the Written Plan, was developed by The National Fuel Quality Assurance Department in conjunction with National Fuel Operations subject matter experts.

The Written Plan addresses the following aspects of the OQ Program: guidelines for identifying Covered Tasks; establishing an evaluation process, including intervals for subsequent evaluation and the role of training; utilizing non-qualified individuals in a Covered Task; post-incident evaluation of qualified personnel; re-evaluation of qualified personnel suspected of questionable performance; communication of significant changes to the OQ Program; recordkeeping; mutual assistance; revisions to Covered Tasks; abnormal operating conditions; retaining personnel qualifications during states of emergency and other critical processes.

2.0 Purpose

The purpose of the Written Plan is to provide a unified standard for qualification of National Fuel Pennsylvania Division personnel and its contractor/subcontractor personnel.

3.0 Definitions

The following document language is defined here to aid *Written Plan* users in understanding key terms used in this document.

3.1 *Ability* – The mental and physical capability to perform a task. All tasks require ability.

3.2 *Abnormal Operating Condition (AOC)* – A condition identified by National Fuel Pennsylvania Division (NFGPA) that may indicate a malfunction of a component or deviation from normal operations that may:

(a) Indicate a condition exceeding design limits; or
(b) Result in a hazard(s) to persons, property, or the environment.

3.3 *Covered Task* – An activity identified by NFGPA that:

(a) Is performed on a pipeline facility
(b) Is performed as a requirement of Title 49 CFR Part 192
(c) Affects the operation or integrity of the pipeline.

3.4 *Domain* – An area of knowledge or skill needed to perform a Covered Task. The domains identified for a Covered Task are assessed by the knowledge and/or skill evaluation(s) for the Covered Task.

3.5 *Element* – A component of a domain. One or more elements may be identified for each of a Covered Task's domains.

3.6 *Evaluation* – A process established and documented by NFGPA to determine an individual's ability to perform a Covered Task by any of the following:

(a) Online examination: a written test administered in a computer-based testing environment
(b) Oral examination
(c) Performance simulation/demonstration
(d) Other forms of assessment.

3.7 *Evaluator* – An NFG Operations SME certified by Industrial Training Services to conduct or administer a skill evaluation for a Covered Task. Evaluators

must possess the required knowledge to (1) ascertain an individual's ability to perform the Covered Task and (2) substantiate an individual's ability to recognize and react to abnormal operating conditions that might surface while performing the activities associated with the Covered Task. This does not necessarily mean to imply that evaluators must be physically able to perform the Covered Tasks themselves.

3.8 *Interval* – The amount of time (years) between two specified evaluations.

3.9 *Knowledge* – Understanding gained through experience or study.

3.10 *NFGDC* – National Fuel Gas Distribution Corporation.

3.11 *NFGSC* – National Fuel Gas Supply Corporation.

3.12 *Pipe* – Any pipe or tubing used in the transportation of gas, including pipe-type holders.

3.13 *Pipeline* – All parts of those physical facilities through which gas moves in transportation, including: pipe, valves, and other appurtenances attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies.

3.14 *Pipeline Facility* – 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.

3.15 *Program Effectiveness* - A process developed to appraise an OQ Plan or program.

3.16 *Qualified* – An individual has been evaluated and can:

(a) Perform assigned Covered Tasks; and
(b) Recognize and react to abnormal operating conditions.

3.17 *Record* – The pass or fail result of an individual's evaluation.

3.18 *Skill* – A demonstrable competency needed to perform a highly specialized Covered Task, learned and developed through experience or gained through training and practice.

3.19 *SME* – Subject Matter Expert. The NFGPA SME's consist of a mix of individuals experienced in operational functions within NFG. Such individuals possess knowledge, skill, and ability in either Field Operations, Measurement & Regulation, Corrosion, Training, or Quality Assurance.

3.20*Span of Control* – The number of nonqualified individuals who can perform a task under the direction and observation of a qualified individual, expressed as a ratio: qualified to non-qualified personnel.

3.21*Subtask* – A qualification option covering a portion of a Covered Task. Certain Covered Tasks have multiple subtasks.

4.0 Covered Task Analysis

Subpart N of Title 49 CFR Part 192 requires that all operators of natural gas pipelines include in their Written Plan provisions to identify Covered Tasks. Sections 4.1 to 4.5 below summarize the analysis criteria used to identify the Covered Tasks listed in Appendix A.

4.1 A task must meet the following three-part test to be a Covered Task:

(a) Is performed on a pipeline facility;

(b) Is performed as a requirement of Title 49 CFR Part 192; and

(c) Affects the operation or integrity of the pipeline.

4.2 The intent of this provision is to limit, to the extent possible, the scope of the regulation. Significantly, a task that could affect the integrity of the pipeline is not automatically a Covered Task under this rule. The potential to affect pipeline integrity is just one of the three tests. Many tasks that could affect pipeline integrity will fail one or more of the other tests and not be covered under the Operator Qualification rule.

4.3 NFG includes in its operating and maintenance (O&M) plans tasks that are not performed on a pipeline facility or not performed as a requirement of Title 49 CFR Part 192. Such tasks do not pass the first or second of the three tests and therefore are not “Covered” tasks

4.4 Construction of pipelines, including construction or repair activities associated with the maintenance of such pipelines, is considered a Covered Task by NFGPA. Although Subpart N of Title 49 CFR Part 192 does not specifically address new construction activities as a Covered Task, NFGPA believes it is sound practice to require that construction activities be performed by qualified personnel.

4.5 If a task is determined to be a Covered Task, NFGPA is obligated under the rule to evaluate the qualifications of its personnel and contractor personnel who perform that task and ensure that those personnel are qualified. If a task is determined not to be a Covered Task, then NFGPA has no further obligations for this task under the Operator Qualification regulations.

4.6 Subpart N does not restrict operators from qualifying personnel in other non-covered, non-jurisdictional tasks. NFGPA chooses to train, test, and/or certify persons to perform the following tasks that fail the three-part test and, therefore, are non-Covered Tasks, which are not subject to this rule.

- **NFGPA 90 - Relight**
- **NFGPA 69B - Sniff Test**

4.7 Covered Task List and Task Sheets

Appendix A includes a list of Covered Tasks and associated Task Sheets. Each Task Sheet documents outcomes of analyses undertaken to define a Covered Task, identify relevant AOCs, and establish its content domain and method(s) of evaluation. The Task Sheets include the following information:

(a) *Task Description* – A brief explanation of the task.

(b) *Application of the Three-Part Test for Covered Tasks* – The determination of whether the task passes each of the three tests. A task is a Covered Task if it passes all three tests.

(c) *Discussion* – Includes information to assist the user in understanding the scope and limitations of the task analysis.

(d) *Subsequent Qualification Interval* – As defined in Section 3.8.

(e) *Abnormal Operating Conditions* – As defined in Section 3.2.

(f) *Evaluation Method(s)* – As defined in Section 3.6 and discussed in Section 6.0.

(g) *Domains and Elements* – As defined in Sections 3.4 and 3.5, respectively.

(h) *Subtasks* – As defined in Section 3.21. As Covered Tasks are reviewed and more than one subtask becomes available, subtask qualification options will be listed in Appendix A and will be updated periodically to reflect the current subtask structure.

(i) *Span of Control* – As defined in Section 3.20.

5.0 Qualification Evaluation Process

The qualification evaluation process is intended to meet the requirements of Subpart N of Title 49 CFR Part 192. The following provisions apply to NFGPA personnel and contractor personnel.

5.1 Initial Qualification Period (Initially Qualifying Personnel)

(a) Initially Qualifying Personnel are those who have not performed the Covered Task/Subtask but will need to begin performing this Covered Task/Subtask.

(b) Available qualification methods:

(1) Online examination
(2) Oral examination (as a reasonable accommodation)
(3) Performance simulation/demonstration
(4) Other forms of assessment (refer to Section 6.0).

(c) Qualification: Unless personnel are under the direct observation of a qualified person (refer to Section 7.0), those personnel must be qualified by an appropriate qualifying method prior to performing the Covered Task/Subtask. The date of qualification will be used for subsequent qualification at the interval established by the NFGPA.

(d) All qualified personnel (NFGPA and contractor) must have first participated in the appropriate NFG Training prior to evaluation

5.2 Subsequent Qualification (Subsequently Qualified Personnel)

(a) All Subsequently Qualified Personnel must be qualified at intervals designated by NFGPA, utilizing the applicable date from Initial or Subsequent qualification, to begin the interval for subsequent qualification.

(b) Available qualification methods:

(1) Online examination
(2) Oral examination (as a reasonable accommodation)
(3) Performance simulation/demonstration
(4) Other forms of assessment (refer to Section 6.0).

(c) Qualification: All applicable personnel will require qualification testing at qualification intervals established by NFGPA.

5.3 Failure of a Qualification Exam

(a) If an individual does not pass a qualification exam, the individual shall be considered UNQUALIFIED, and prevented for 12 hours from retaking the

same exam. Following the initial failure on a covered task, the individual is given refresher material to study.

(b) If the individual fails a second time, an administrative lock-out will be initiated, and the individual must attend the initial training class prior to re-taking the exam a third time.

(c) If an individual fails a qualification exam for a third time, the individual shall remain UNQUALIFIED. The administrative lock-out will be in place for a minimum of six months, and NFGPA Superintendent Approval will be required prior to any additional testing.

6.0 Qualification Criteria

NFGPA uses various evaluation methods, as appropriate, to ensure that personnel performing Covered Tasks/Subtasks possess the knowledge, skill, and ability needed for proper, safe performance of those tasks, including the ability to recognize and respond to relevant abnormal operating conditions.

Online examinations are assessments of fundamental knowledge needed to perform Covered Tasks/Subtask, including how to use or apply that knowledge in task-relevant contexts. Performance simulations/demonstrations are “hands-on” tests administered under structured, controlled conditions, principally assessing the skills needed to perform a Covered Task/Subtask. Criteria for these methods of evaluation are presented in Sections 6.2 and 6.3.

Qualification methods also include oral examination (as a reasonable accommodation) For example, oral examinations may be used in assessing ADA-qualified or other demonstrably deserving candidates, and translators may be used in oral testing as appropriate.

NFGPA will consider the unique needs of individuals and, if appropriate, accommodate individual needs by substituting one available qualification method for another or by modifying the method as appropriate.

6.1 Role of Training

Beyond its emphasis on *evaluation* to ensure that personnel are qualified to perform Covered Tasks/Subtasks, Title 49 CFR 192.805 also requires the operator to “*provide training, as appropriate, to ensure that individuals performing covered tasks have the necessary knowledge and skills to perform the tasks in a manner that ensures the safe operation of facilities*”. In view of the importance of training in general and the training-related aspect of the OQ regulation in particular, each individual shall be provided with training on relevant Covered Tasks/Subtasks, as appropriate.

The appropriate level of training will be based on each individual’s demonstrated level of knowledge, skill, and ability. Such training may include: on-the-job training, classroom instruction, demonstrations, online training, or other methods deemed appropriate by NFGPA.

There will be a 12-hour waiting period between training and testing. After attending a Training Part, or viewing an online training module for a Covered Task/Subtask, an individual will be required to wait 12 hours before taking an examination for that Covered Task/Subtask.

6.2 Criteria for Online Examinations

(a) Test shall be based on the domains and elements as identified in the Covered Task/Subtask documentation.

(b) Test shall include evaluation of procedural knowledge of the task and recognition and reaction to abnormal operating conditions.

(c) The format of test questions may include multiple choice, true/false, matching, or other recognized formats.

(d) An appropriate level of acceptability (a cut-off score of 80% correct) shall be established for each online test.

(e) At the end of an online test session, individuals who have successfully completed (passed) an assessment but did not earn a perfect score shall be informed of the correct answer to any item they omitted or answered incorrectly.

(f) If there is failure on a qualification test, NFGPA policy will dictate subsequent action as outlined in Section 5.3

6.3 Criteria for Examinations Based on Simulation/Demonstration

(a) Test shall be based on the domains and elements as identified in the Covered Task/Subtask documentation.

(b) Hands-on simulations/demonstrations shall be used to evaluate performance.

(c) Test shall evaluate the ability to perform the relevant element(s) identified for the Covered Task/Subtask.

(d) A standardized checklist of measurable criteria shall be used to minimize evaluators' subjectivity.

(e) An appropriate level of acceptability (a passing standard of 100% correct) shall be established for each performance test.

(f) If there is failure on a qualification test, NFGPA policy will dictate subsequent action as outlined in Section 5.3

*NOTE: When NFGPA tasks are updated, existing qualifications will remain active until the expiration date, at which point the newest/latest version will become effective upon successful qualification evaluation(s).

6.4 Contractor/Subcontractor Employee Qualification

Contractor/Subcontractor employees must be qualified to perform Covered Tasks/Subtasks or be under the direction and observation of a qualified individual (refer to Section 7.0). NFGPA trains and qualifies all of its employees as well as its Contractors/Subcontractors to ensure exposure/understanding to the NFG's operating procedures/materials/tools and equipment.

6.5 Approved Entities for Administering Qualification Methods

(a) NFG Supervisors that have successfully completed ITS's Proctor/Evaluator Training Course

(b) Veriforce (see Appendix B)

(c) Flexsteel (see Appendix C)

6.6 Subsequent Qualification Interval Criteria

The requalification interval for each Covered Task is based on the following criteria:

(a) Typical Frequency of performing the Covered Task

(1) High - At least once every 6 months (0-6 months)
(2) Medium - At least once a year (>6-12 months)
(3) Low - Less often than a year (>12 months)

(b) Complexity of the Covered Task

(1) Low - A task that requires:
a) comprehension of basic procedures (e.g., explain the requirements for pipe-to-soil readings)
b) performance of basic skills (e.g., operate a test instrument)

EXAMPLE: Measuring Pipe-to-Soil Potential

(2) Medium - A task that requires:
a) comprehension of intermediate procedures (e.g., explain the variables and requirements for repairing a gas leak)
b) performance of an intermediate skill(s) (e.g., safely install a leak clamp)
c) application of intermediate principles and requirements (e.g., determine the extent of the gas leak and the condition of the pipe)
d) analysis of routine job assignments (e.g., select the appropriate procedures and leak clamp to repair a gas leak)

EXAMPLE: Repairing Distribution Line Leaks

(3) High - A task that requires:
a) comprehension of advanced knowledge (e.g., explain the variables and requirements for selecting equipment and procedures for tapping pipelines under pressure)
b) performance of advanced skill(s) (e.g., safely tapping pipelines under pressure) or distinctive physical abilities
c) application of advanced knowledge (e.g., identify the steps to be taken should a problem arise during the tapping operation)

d) analysis of non-routine and complex job assignments (e.g., tapping pipelines on high pressure systems)

EXAMPLE: Tapping Pipelines Under Pressure

(c) Risk or consequences of improper performance of the Covered Task

(1) Low - Improper performance of the task may result in an abnormal operating condition:

a) that will be discovered by a required periodic inspection (e.g., pipe-to-soil readings, pipeline patrols)

b) that will cause a backup system to operate (e.g., relief valve vents due to improperly adjusting a regulating device).

(2) Medium - Improper performance of the task may result in an abnormal operating condition:

a) that will not be discovered during a required periodic inspection. (e.g., internal corrosion, pipe settlement that results in a gas leak).

b) while the task is being performed.

(3) High - Improper performance of the task may result in an abnormal operating condition while the task is being performed that is a hazard to persons, property, or the environment or a reportable condition.

6.7 Subsequent Qualification Intervals

(a) The NFGPA SME's have determined that all Tasks with "calculated" 5 year qualification intervals will be 3 years.

(b) Subsequent qualification intervals allow for a 3-month evaluation grace period. For example, individuals qualified on tasks with a 1-year subsequent qualification interval shall re-qualify within 1 year, but not to exceed 15 months. Individuals qualified on tasks with a 3-year subsequent qualification interval shall re-qualify within 3 years, but not to exceed 39 months.

(c) The grace period for requalification may be extended for the duration of a declared State of Emergency and for a reasonable period of time thereafter to requalify personnel.

7.0 Performance of a Covered Task/Subtask by Non-Qualified Individuals

Individuals who are not qualified under the Operator Qualification rule may perform Covered Tasks/Subtasks under the direction and observation of a qualified individual following the span of control for each Covered Task as specified in Appendix A.

The NFGPA SME's determined the span of control for each task. Factors considered during this analysis included task complexity, risk, and associated abnormal operating conditions.

7.1 The qualified individual shall have the following responsibilities and authorities:

(a) The responsibility to intervene if the task is being performed improperly and the ability to take immediate corrective action if necessary

(b) Complete responsibility for proper and safe performance of the Covered Task/Subtask by the non-qualified individual

(c) The authority to dismiss the non-qualified individual from performing a particular Covered Task/Subtask due to inability to perform the Covered Task/Subtask as directed

(d) The responsibility to consider the following before allowing a non-qualified individual to perform a Covered Task/Subtask under direction and observation:

(1) External factors, such as weather, noise, ground conditions, and obstructions

(2) Span of control requirements

(3) Circumstances unique to the non-qualified individual, such as training, experience, and any prior work performed under direction and observation.

7.2 A qualified individual must observe and direct, as appropriate, non-qualified personnel performing a Covered Task/Subtask by:

(a) Remaining in direct visual and verbal contact at all times with a non-qualified individual who is performing a Covered Task/Subtask.

(b) Allowing multiple Covered Tasks/Subtasks to be performed simultaneously only if direct visual and verbal contact with non-qualified personnel is maintained at all times during the performance of those Covered Tasks/Subtasks. A qualified individual observing multiple non-qualified individuals performing Covered Tasks/Subtasks simultaneously must abide by the most stringent (lowest) span of control ratio for the Covered Tasks being performed.

(c) Exercising due diligence in identifying and reacting to abnormal operating conditions, as needed, in the course of observing and directing the work of the non-qualified individual.

7.3 If an abnormal operating condition occurs when a qualified individual is directing the work of one or more non-qualified individuals or if the qualified individual must intervene to ensure proper, safe performance of a Covered Task/Subtask by any non-qualified person, the qualified individual must:

(a) Stop all work being performed by non-qualified personnel under the individual's direction and observation. No work on any Covered Task/Subtask shall be performed by non-qualified personnel until such time as a qualified individual can resume the required oversight and responsibility for proper, safe performance of the Covered Task(s)/Subtask(s).

(b) Prescribe immediate corrective action in response to the situation.

7.4 Tapping an energized pipeline, welding steel, and joining plastic shall not be performed by a non-qualified individual.

8.0 Post-Incident Evaluation

If NFGPA has reason to believe that an individual's performance of a Covered Task/Subtask contributed to an incident as defined in Title 49 CFR Part 191, Section 191.3, the individual must be evaluated prior to continuing the performance of the Covered Task/Subtask.

8.1 Title 49 Section 191.3 defines an *incident* as:

(a) An event that involves a release of gas from a pipeline, gas from an underground natural gas storage facility (UNGSF), or of liquefied natural gas, liquefied petroleum gas, refrigerant gas, or gas from an LNG facility, and that results in one or more of the following consequences:

(1) A death, or personal injury necessitating in-patient hospitalization

(2) Estimated property damage of $50,000 or more, including loss to the NFGPA and others, or both, but excluding cost of gas lost.

(3) Unintentional estimated gas loss of three million cubic feet or more.

(b) An event that results in an emergency shutdown of an LNG facility or a UNSGF. Activation of an emergency shutdown system for reasons other than an actual emergency within the facility does not constitute an incident.

(c) An event that is significant, in the judgment of the NFGPA, even though it did not meet the criteria of paragraphs (a) or (b).

8.2 NFGPA shall determine if the incident occurred as a result of the performance of any Covered Task(s)/Subtask(s). If this is the case, NFGPA should perform the following using the Deficiency Review Process outlined in Section 10:

(a) Identify the Covered Task(s)/Subtask(s) being performed prior to the incident and the person(s) performing the Covered Task/Subtask.

(b) Confirm that each person's Operator Qualification status is current. If an individual is not currently qualified, NFGPA shall determine the name of the Qualified Person who was supervising the non-qualified individual performing the Covered Task/Subtask and determine why Span of Control was used at that time.

(c) Review the Covered Task/Subtask for deficiencies that may have contributed to the incident. These may include but are not limited to review of the qualification evaluation method, procedures, processes, and training. Any deficiencies discovered by the review should be remedied as soon as reasonably possible and communicated in accordance with Section 10.0.

(d) If no deficiencies are identified in Section 8.2(c), any individual(s) performing the Covered Task/Subtask and directly involved in the incident

shall not continue to perform the Covered Task/Subtask unless Section 8.2(e) has been completed.

(e) NFGPA shall provide the opportunity for the individual to re-establish his/her qualifications to perform the Covered Task/Subtask. This can be accomplished by using one or more of the evaluation methods listed in Section 5.2(b). If the individual passes the evaluation, he/she shall be permitted to continue to perform the Covered Task/Subtask. If the individual does not pass the evaluation, the individual shall be considered non-qualified.

9.0 Re-Evaluation Due to Questionable Performance

If NFGPA has reason to believe an individual(s) is no longer qualified to perform a Covered Task/Subtask, NFGPA is required to evaluate the individual(s). Reasons for this belief may include but are not limited to: observation that the individual is improperly performing a Covered Task/Subtask, observable loss of the individual's motor skills, prolonged absence, or other demonstrable indications that the individual may no longer be able to perform the Covered Task/Subtask.

NFGPA may also determine that an evaluation is necessary if an individual's performance has been observed or reported as inadequate. If this occurs, NFGPA shall perform the following using the Deficiency Review Process outlined in Section 10:

(a) Determine that a qualified individual has unsatisfactorily performed an element and indicates an inability to perform the Covered Task/Subtask.

(b) Provide the opportunity for the qualified individual to reestablish ~~his/her~~ qualifications to perform the Covered Task/Subtask by taking a re-qualification evaluation. If the individual passes, the individual may resume performance of the Covered Task/Subtask.

(c) Consider the individual non-qualified if the individual does not pass the re-qualification. Section 5.3 "Failure of a Qualification Exam" will be followed should an individual not pass requalification.

10.0 Deficiency Review Process

NFG has established a Deficiency Review process and form to comply with the requirements outlined in Sections 8 & 9 of this Written Plan. The process is as follows:

(a) Any supervisor initiating a Deficiency Review shall complete the "Discovery" section of the Deficiency Review Form (See Appendix D) then contact the Deficiency Review Team Coordinator to discuss the matter.

(b) Upon receipt, a hearing will be scheduled at which time the Team will review the matter and decide upon final corrective actions.

(c) Upon completion of the hearing, all actions taken will be documented on the form. The document will then be returned to the local manager for a final signature and date, indicating acknowledgement and agreement with the team's recommendations. The Deficiency Review Form shall then in turn be sent back to the coordinator for filing. The Quality Assurance Department is responsible for tracking and documenting the recommended steps for resolution.

11.0 Management of Change (MOC)

This section establishes provisions for communicating information on significant changes to the OQ Program in accordance with Title 49 CFR Part 192, Section 192.805(f) which states to communicate changes that affect covered tasks to individuals performing those covered tasks and 192.805(i) which states that after December 16, 2004, notify the administrator or a state agency participating under 49 U.S.C. Chapter 601 if the operator significantly modifies the program after the administrator or state agency has verified that it complied with this section. Figure 1 presents the communication/change process

The NFG QA Dept. will review the Written Plan as necessary based on the extent or scope of proposed changes, or at a minimum, annually; not to exceed 15 months (see Appendix E – Dates of Review)

NFG is responsible for having an internal MOC Process that ensures the Plan is reviewed and updated in accordance with its internal procedures (including materials, tools, and standards).

Also note, that as NFGPA tasks evolve, an individual's qualifications will remain in effect until expiration, at which point the newest/latest task(s) will become effective upon successful written and/or performance evaluations.

11.1 NFG is responsible for identifying industry changes that may result in an action established under Title 49 CFR, Section 192.805(i). Changes that may be identified include, for example, changes in state and federal regulations, new technologies, results of OQ Plan continuous improvement efforts (collaborative sharing of regulatory audit findings, QA/QC findings, and company internal audit assessments, etc.) and emerging best practices. When changes are identified, they must be evaluated to determine their significance, and determine its potential impact on the OQ Program.

11.2 Resulting revisions to the OQ Program may include one or more or the following:

(a) Changes to or establishment of a Covered Task

(b) Revisions to the Written Plan

(c) Changes to recordkeeping processes.

11.3 The designated NFG QA OQ contact is responsible for communicating any changes to the appropriate participants within the NFGPA OQ Program that are affected by the change, in compliance with Title 49 CFR, 192.805(f) and the NFG's MOC procedures (see Appendix E – MOC Procedures).

11.4 Notification of Significant Program Changes to Pipeline Safety Regulators

NFGPA shall formally communicate significant program changes to appropriate pipeline safety regulators, in compliance with Title 49 CFR, Section 192.805(i) all significant changes will be forwarded to:

Pennsylvania Public Utility Commission
Bureau of Investigation & Enforcement
Safety Division
Commonwealth Keystone Bldg.
400 North Street
Harrisburg, PA 17120

11.5 Mergers and Acquisitions

Provisions for addressing OQ requirements following mergers and acquisitions should be developed and documented as soon as practical after such business transactions have been negotiated (e.g., provisions for either combining the programs or maintaining distinct programs, so long as compatibility issues are reviewed and resolved).

12.0 Recordkeeping

The records that support an individual's qualification are maintained in accordance with Title 49 CFR Part 192, Section 192.807_Recordkeeping.

12.1 The identity of each qualified individual must include at a minimum:

(a) The individual's name
(b) Identification of the Covered Task(s)/Subtask(s) for which the individual is qualified
(c) Date of current qualification
(d) Qualification method(s).

12.2 Records shall also be maintained for an individual performing a Covered Task/Subtask in which:

(a) NFGPA has reason to believe that the individual's performance contributed to an incident as defined in Title 49 CFR Part 191, Section 191.3.

(b) NFGPA has reason to believe that the individual is no longer qualified to perform the Covered Task/Subtask.

(c) See Section 10 – Deficiency Review Process

12.3 Records of an individual's current qualification must be maintained while the individual is performing the current tasks for which ~~he/she~~ the individual is qualified. When an individual is evaluated for subsequent qualification, the prior qualification records must be maintained for a period of 5 years. Records of prior qualification and records of individuals no longer performing Covered Tasks/Subtasks shall be retained for a period of 5 years.

12.4 NFGPA is responsible for administering the master recordkeeping database. NFGPA is responsible for updating and maintaining the qualification records of its personnel. All records are kept electronically within the Onboard Learning Management System. NFGPA contracts with Industrial Training Services to maintain these records.

12.5 NFGPA uses "roles" within the ITS Onboard system for ease of tracking personnel's qualifications. A role is a list of covered tasks that are typically associated with a job function within Operations.

13.0 Mutual Assistance

Throughout the course of normal business **OR** in the event of major natural disasters or other emergencies, NFGPA may require assistance from employees of NFGNY or another operator or contractor. These individuals may be required to perform Covered Tasks/Subtasks. To allow such mutual assistance without violating Title 49 CFR 192, Subpart N, as well as applicable state regulations:

13.1 Any NFG Company/contractor personnel **trained by NFG** and **NGA qualified** may provide assistance to NFGPA.

13.2 If any other company not recognized by the Written Plan is asked to provide assistance in an emergency, the NFG QA Department shall request a copy of the assisting company's OQ Plan and details of employee qualifications. Prior to any Covered Task/Subtask being performed, the NFG QA Department will identify any differences in the Covered Task/Subtask being performed, and ensure the assisting company's personnel understand the differences and undergo training if necessary.

14.0 Effectiveness

NFG has a process to measure the effectiveness of its OQ Program. By training an individual and testing their KSAs (knowledge, skill, and ability), the potential for human error on natural gas facilities will be minimized. An effectiveness review of the Written Plan will be conducted once each calendar year, not to exceed 15 months. This review will be conducted in conjunction with the Written Plan annual review.

14.1 The process used by NFG to measure the effectiveness of the program includes (1) conducting reviews on procedures and Regulatory changes through the NFG's Operational Compliance Program process to ensure the qualification program is meeting all procedural and regulatory requirements; (2) conducting reviews of the Written Plan itself to ensure that it is being implemented and executed as written; and (3) documenting and amending any changes necessary to address the findings of the effectiveness review

14.2 NFG uses an OQ Training and Testing Assessment designed to gauge the effectiveness of Trainers, Proctors, and Evaluators roles and actions within the OQ program. The following measures are used to evaluate the effectiveness of the program:

i. Training was adequate for the specific covered task(s);
ii. Evaluation was conducted properly;
iii. Evaluator or Trainer followed program or met requirements;
iv. Change made to a covered task or the KSAs was adequately evaluated for necessary changes to training or evaluation;
v. Change to a covered task(s) or the KSAs was adequately communicated;

14.3 NFG Quality Assurance (QA) auditors along with local supervision will perform field assessments to ensure the continued competency of an individual to perform a Covered Task(s)/Subtask(s). Should an individual's competency be in question as stated in **Sec 9.0 "Re-Evaluation Due to Questionable Performance",** there is a deficiency review process (Section 10) in place which will allow for the suspension of an individual's qualification for a Covered Task(s)/Subtask(s) pending further investigation. Should the qualification for a Covered Task(s)/Subtask(s) be revoked, the individual is required to requalify on that Covered Task(s)/Subtask(s) and additional field assessments may be performed to again ensure the competency of that individual. The following measures are used to evaluate the effectiveness of the OQ Program:

i. Was the individual qualified? If not, was the individual being directed and observed by a qualified individual?
ii. Was Span of Control used appropriately?

iii. Were KSAs for the specific covered task(s) adequately determined?
iv. Did the individual follow approved procedures and/or use approved equipment?
v. Did the individual recognize an abnormal operating condition, whether it is task-specific or non-task-specific, which occurs anywhere on the system?
vi. Did the individual take the appropriate action following the recognition of an abnormal operating condition (task-specific or non-task-specific) that occurs anywhere on the system?

APPENDIX A

Operator Qualification Covered Task List
And
Task Sheets

COVERED TASK LIST

Covered Task	Subsequent Qualification Interval	Span of Control
1. Inspecting for shorted casings	3 years	1 to 2
2. Measuring pipe-to-soil potential	3 years	1 to 1
3. Conducting a soil resistivity survey	3 years	1 to 1
4. Conducting interference testing	3 years	1 to 1
5. Electrically checking for proper performance of diodes and interference bonds	3 years	1 to 1
6. Inspecting for atmospheric corrosion	3 years	1 to 3
7 & 13. Ensuring operation of a rectifier	3 years	1 to 1
8. Visually inspecting for internal corrosion	3 years	1 to 2
9. Removing coupons/sample gas or liquids for analysis and evaluation of internal corrosion	3 years	1 to 1
10. Clearing a shorted casing	3 years	1 to 2
11. Applying pipe coating in the field	3 years	1 to 2
12. Cleaning and either coating or jacketing pipe for atmospheric corrosion	3 years	1 to 2
14. Installing or replacing an anode on a pipeline	3 years	1 to 2
15. Installing, replacing, and testing electrical isolation couplings on a pipeline	3 years	1 to 2
16. Installing/replacing a corrosion test station on a pipeline	3 years	1 to 2
17. Repairing coating on steel pipelines	3 years	1 to 2
18. Conducting gas leakage surveys	3 years	1 to 1
19. Patrolling and inspecting pipelines	3 years	1 to 2
20. Investigating leak/odor complaints	3 years	1 to 1
21. Line locating and mark out	3 years	1 to 1

22. Inspecting 3rd party excavations for damage prevention	3 years	1 to 1
23 & 24. Inspecting the condition of exposed pipe or coating	3 years	1 to 2
25. Repairing a transmission pipe	3 years	1 to 1
26, 27, 41, & 42. Lubricating, repairing and operating valves	3 years	1 to 1
29 & 30. Repairing steel and plastic distribution pipe	3 years	1 to 1
31. Installing pipe	3 years	1 to 2
32 & 33. Purging a pipeline in and out of service	3 years	1 to 1
34. Performing pressure test on a pipeline	3 years	1 to 1
35. Stopping gas flow	3 years	1 to 1
36 & 47. Abandonment and deactivation of facilities	3 years	1 to 1
37. Tapping pipelines under pressure	3 years	1 to 0
38. Starting up or shutting down any part of the pipeline that could cause MOAP to be exceeded, including turning valves and monitoring flows and pressures	3 years	1 to 1
39. Removing service tee or fitting from steel pipe	3 years	1 to 1
40. Installing/replacing tracer wire	3 years	1 to 3
48. Stainless steel Tubing and Tube Fitting Installation	3 years	1 to 1
49. Mechanical joining of pipe other than plastic	3 years	1 to 1
50. Joining plastic pipe	3 years	1 to 0
51. Installing tapping tee on pipe	3 years	1 to 0
52. Inspecting vintage pipe joints including socket and saddle fusion	3 years	1 to 0
55. Maintaining a pipeline compressor station	3 years	1 to 1
56. Operate a pipeline compressor station	3 years	1 to 1

57. Repair a compressor	3 years	1 to 1
58. Maintaining gas detection systems and alarms in compressor stations	3 years	1 to 1
59 & 60 Controlling and monitoring gas flows and pressures	3 years	1 to 1
61. Inspect a pressure recording gauge	3 years	1 to 1
62, 63, & 65 – Inspect and test a pressure regulator station, including heating equipment	3 years	1 to 1
64. Inspecting telemetering equipment at a pressure limiting or regulating station	3 years	1 to 1
66. Field interpretation of pressure recording devices	3 years	1 to 1
68. Odorizer inspection, testing, preventive and corrective maintenance	3 years	1 to 1
69. Monitoring natural gas odorization levels	3 years	1 to 1
70. Identifying and responding to abnormal operating conditions and unsafe conditions, and knowledge of properties of natural gas	3 years	N/A
71. Operator excavating and backfilling in the vicinity of a pipeline	3 years	1 to 3
72. Installing and turning off residential, small commercial, large commercial and industrial meters and regulators	3 years	1 to 1
84. Bending of steel pipe	3 years	1 to 1
85. Identifying and reacting to meter assembly abnormal operating conditions	3 years	N/A
90. Relight	3 years	1 to 1
101. Flexsteel Awareness	3 years	N/A

COVERED TASK: NFGPA 1 – Inspecting for Shorted Casings

A. Task Description:

Inspect and test for casing-carrier isolation using direct and indirect survey methods.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.467 and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Medium
Complexity of Task	Low
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Casing-Carrier Installation
   a. Knowledge of casing-carrier installation practices
   b. Knowledge of pipe casing applications

2. Casing-Carrier Isolation
   a. Know the importance of visual inspection for casing-carrier isolation
   b. Knowledge of casing-carrier isolation analysis

3. Testing for Shorted Casing
   a. Know how to identify the location of a short
   b. Know how to identify the type of short
   c. Know how to interpret data collected

H. Subtasks: None

I. Span of Control: 1 to 2.

COVERED TASK: NFGPA 2 – Measuring Pipe-to-Soil Potential

A. Task Description:

Use a Multimeter to measure the voltage difference between the pipe and the surrounding soil.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.465 and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Voltage measurements are used to determine if cathodic protection levels are adequate on protected lines and if active corrosion is occurring on unprotected lines.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Low
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Connection to Structures
2. Procedures for Taking Readings
3. Placement of Reference Electrodes
4. Recording of Measurements
5. Interpretation of Readings

H. Subtasks:

Test A	Measuring and interpreting pipe-to-soil potential reading	Domains 1 - 5
Test B	Measuring pipe-to-soil potential (measuring only)	Domains 1 - 4

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 3 – Conducting a Soil Resistivity Survey

A. Task Description:

Measure the electrical resistance of the soil.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.455, 192.465, and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion:

The electrical resistance of the soil is used to evaluate the corrosivity of the soil. Generally, the lower the resistance, the more corrosive the soil. This is important information for the design of cathodic protection systems and may be used to prioritize bare steel piping segments for installation of cathodic protection.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Medium
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Resistivity and Resistance
   a. Know the meaning of resistance and resistivity
   b. Know units of measurement for resistance and resistivity

2. Soil Conditions
   a. Knowledge of soil conditions in relation to resistivity and rate of corrosion
   b. Know the type of cathodic protection system used for given soil conditions

3. Methods of Resistivity Testing
   a. Knowledge of the proper resistivity test for a given purpose
   b. Knowledge of procedures for taking resistivity measurements

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 4 – Conducting Interference Testing and Remediation

A. Task Description:

Conduct stray current interference testing.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.473 and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion:

This task includes testing for stray AC or DC currents.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Medium
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Electrical Interference Current Types and Sources
   a. Knowledge of types of stray current
   b. Knowledge of sources of stray current

2. Electrical Interference Testing Methods
   a. Know how to identify and test for the type, magnitude, and extent of electrical interference
   b. Knowledge of pick-up and discharge locations

3. Electrical Interference Remediation
   a. Knowledge of remediation techniques for electrical interference

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 5 – Electrically Checking for Proper Performance of Diodes and Interference Bonds

A. Task Description:

Inspect the various electrical components of a cathodic protection system.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.465 and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Medium
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Basics of Diodes and Interference Bonds
   a. Knowledge of the purpose of diodes and bonds
   b. Knowledge of proper location for diodes and bonds
   c. Know whom to notify regarding changes to diodes and bonds
   d. Knowledge of inspection requirements for diodes and bonds

2. Diodes
   a. Knowledge of how diodes work
   b. Knowledge of testing procedures for diodes
   c. Knowledge of testing procedures for A/C mitigation

3. Interference Bonds
   a. Knowledge of how interference bonds work
   b. Knowledge of testing procedures for interference bonds

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 6 - Inspecting for Atmospheric Corrosion

A. Task Description:

Monitor, evaluate and remediate atmospheric corrosion on a pipeline facility.

B. Application of the three part test for covered tasks:

This is performed on a pipeline facility;
This is performed as a requirement of 49 CFR 192.481; and 192.605.
This can affect the operation or integrity of the pipeline.

C. Discussion:

National Fuel will use meter readers for tasks in addition to reading meters, which is not a Covered Task, such as inspecting the meter set and associated piping for evidence of corrosion. Since inspecting for atmospheric corrosion is a Covered Task, meter readers and others whose primary task(s) are not covered must be qualified on each Covered Task they perform in the field.

D. Subsequent Qualification Interval:

Subsequent Task Interval	3 years
Task Frequency Performed	High
Complexity of Task	Low
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Monitoring for Atmospheric Corrosion
   a. Know where to check for atmospheric corrosion
   b. Know the characteristics of atmospheric corrosion
   c. Know how to recognize atmospheric corrosion

2. Evaluation of Atmospheric Corrosion
   a. Know how to prepare pipe for evaluation of atmospheric corrosion
   b. Know the tool used for evaluating atmospheric corrosion

3. Remediation of Atmospheric Corrosion
   a. Know how to determine remedial action for atmospheric corrosion

H. Subtasks: None

I. Span of Control: 1 to 3

COVERED TASK: NFGPA 7 & 13 – Installation, Replacement and Ensuring Operation of a Rectifier

A. Task Description:

Measure the voltage and current output from a rectifier on a cathodic protection system on a steel pipeline and inspect rectifier for proper operation. Install or replace a rectifier on a steel pipeline.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.465 and 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

An operator is required to apply cathodic protection retroactively to unprotected pipe if the operator finds that active corrosion is occurring. Rectifiers may also break down and need to be replaced. Retrofitting cathodic protection in these circumstances is a Covered Task. Electrical connection for feed power is not a component of this Covered Task since it does not affect the integrity of the pipeline.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Medium
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Rectifier Design and Function
   a. Knowledge of rectifier components
   b. Knowledge of rectifier types
   c. Knowledge of impressed current CP systems
   d. Knowledge of a rectifier's purpose

2. Measurement of Rectifier Operating Voltage and Current
   a. Know where and how to measure operating voltage and current
   b. Know how to interpret measurements of voltage and current

3. Rectifier Operation
   a. Knowledge of rectifier connections
   b. Knowledge of rectifier installation/replacement and inspection practices
   c. Knowledge of basic rectifier troubleshooting

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 8 - Visually Inspecting for Internal Corrosion

A. Task Description:

Inspect the inside pipe wall of the pipeline for pits, general corrosion, or other signs that corrosion is occurring inside the pipeline.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.475, 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Low
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Identifying Internal Corrosion
   a. Know how to recognize internal corrosion
   b. Know ways of detecting the presence of internal corrosion
   c. Know requirements for inspecting for internal corrosion

2. Responding to Internal Corrosion
   a. Know what to do when internal corrosion is found
   b. Know how to properly document internal corrosion

H. Subtasks: None

I. Span of Control: 1 to 2

COVERED TASK: NFGPA 9 – Removing Coupons/Sample Gas or Liquids for Analysis and Evaluation of Internal Corrosion

A. Task Description:

Remove coupons for analysis and evaluation to determine if internal corrosion is occurring. This includes pulling a sample of natural gas or liquids for analysis for corrosivity. This does not include taking samples for heating value determination or other purposes.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.477 and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Removing a coupon is a Covered Task. Analyzing the coupon is a Covered Task when performed on the pipeline facility; however, it is not a Covered Task if performed off site.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Medium
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Fundamentals of an Internal Corrosion Coupon
   a. Know the purpose of an internal corrosion coupon
   b. Know the characteristics of an internal corrosion coupon

2. Installing and Removing an Internal Corrosion Coupon
   a. Know where to install internal corrosion coupons
   b. Knowledge of the installation and removal procedures
   c. Knowledge of the tools used to remove an internal corrosion coupon

3. Measuring Internal Corrosion
   a. Knowledge of measurement fundamentals
   b. Knowledge of the tools used to measure the rate of internal corrosion.

4. Collecting Internal Pipeline Liquid Samples
   a. Knowledge of the fundamentals of internal pipeline liquids
   b. Knowledge of the type of containers and tools used to collect liquid samples
   c. Knowledge of the procedure for collecting liquid samples
   d. Knowledge of the requirements an individual must meet to qualify to perform this task

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 10 - Clearing a Shorted Casing

A. Task Description:

Clearing a shorted casing refers to activities to electrically isolate a steel pipeline from a casing.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.467 and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion:

When casing and pipeline are not electrically insulated, cathodic protection can be affected. This task is generally accomplished by excavating the casing at both ends and jacking the pipe up or down to clear the point of contact.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Medium
Complexity of Task	Low
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Electrical Isolation
   a. Knowledge of electrical isolation methods to remove shorts

2. Inspection and Repair
   a. Know what components to inspect when a casing is exposed
   b. Knowledge of repair procedures for clearing a shorted casing

3. Backfilling and Verification
   a. Know how to properly backfill a casing repair
   b. Know how to verify that a casing short has been cleared

H. Subtasks: None

I. Span of Control: 1 to 2.

COVERED TASK: NFGPA 11 - Applying Pipe Coating in the Field

A. Task Description:

Coat a metallic pipe with an insulating material to prevent electrical flow from the pipe to the soil and thereby minimize galvanic corrosion of the metal pipe or mitigate atmospheric corrosion of above-ground pipe.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.461 and 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

In no circumstance will applying coating at a mill, coating facility, or other location away from the pipeline right-of-way be a Covered Task under this rule because those locations are not pipeline facilities; therefore, only field coating of pipe is a Covered Task.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Measurements
   a. Knowledge of the measurement tools used

2. Coating Failures and Repairs
   a. Knowledge of proper surface preparation
   b. Know how to recognize and correct defects in coatings

3. Wax Tape Pipe Coatings
   a. Knowledge of proper wax tape application methods
   b. Knowledge of appropriate uses of wax tape pipe coatings

4. Paint Pipe Coatings (Spray and Brush)
   a. Knowledge of proper paint pipe coating application methods
   b. Knowledge of proper uses of paint pipe coatings

5. Hot Applied Tape Pipe Coatings
   a. Knowledge of proper hot applied tape application methods
   b. Knowledge of appropriate uses of hot applied tape pipe coatings

6. Heat Shrink Sleeve Pipe Coatings
   a. Knowledge of proper heat shrink sleeve application methods
   b. Knowledge of appropriate uses of heat shrink sleeve pipe coatings

7. Mastic Pipe Coatings
   a. Knowledge of proper mastic pipe coatings application methods
   b. Knowledge of appropriate uses of mastic pipe coatings

8. Cold Applied Tape Pipe Coatings
   a. Knowledge of proper cold applied tape application methods
   b. Knowledge of appropriate uses of cold applied tape pipe coatings

9. Two-Part Epoxy Pipe Coatings
   a. Knowledge of proper two-part epoxy application methods
   b. Knowledge of appropriate uses of two-part epoxy pipe coatings

H. Subtasks:

Subtasks assignments are determined by each operator.

Test A	Pipe coatings: Wax tape and paint	Domains 1, 2, 3, and 4
Test B	Pipe Coatings: Hot applied tape	Domain 5
Test B	Pipe Coatings: Heat shrink sleeve	Domain 6
Test B	Pipe Coatings: Mastic	Domain 7
Test B	Pipe Coatings: Cold applied tape	Domain 8
Test B	Pipe Coatings: Two-part epoxy	Domain 9

I. Span of Control: 1 to 2

COVERED TASK: NFGPA 12 - Cleaning and Either Coating or Jacketing Pipe for Atmospheric Corrosion

A. Task Description:

Clean the surface of the pipe to remove corrosion by-products and other debris prior to applying a coating or jacket to control atmospheric corrosion on aboveground metallic pipe.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.479 and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions: See Covered Task 11

F. Evaluation Method(s): See Covered Task 11

G. Domain and Elements: See Covered Task 11

H. Subtasks: See Covered Task 11

I. Span of Control: 1 to 1

COVERED TASK: NFGPA 14 – Installing/Replacing an Anode on a Pipeline

A. Task Description:

Install or replace anodes.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.463, 192.465, and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion:

An operator is required to apply cathodic protection retroactively to unprotected pipe if the operator finds that active corrosion is occurring. Operators also replace anodes that have exceeded their useful lives. Installing an anode in these circumstances is a Covered Task.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

1. Online examination with reasonable accommodation
2. Performance simulation/demonstration

G. Domain and Elements:

1. Proper Handling of Anodes
2. Where to Place an Anode Relative to a Pipe
3. How to Install and Replace an Anode
4. Documentation Requirements
5. Demonstration: Perform an Exothermic Weld

H. Subtasks: None

I. Span of Control: 1 to 2

COVERED TASK: NFGPA 15 – Installing, Replacing, and Testing Electrical Isolation Couplings on a Pipeline

A. Task Description:

Install an isolation fitting to electrically isolate cathodically-protected segments of steel piping from segments that are not cathodically protected. This also includes installing isolation fittings between the company's pipelines and piping owned by other persons. Testing that the fitting is, in fact, electrically isolating the two pipes is included in this task.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.467 and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Isolation Fittings
   a. Knowledge of the different types of isolation fittings
   b. Knowledge of proper assembly and installation of isolation fittings
   c. Knowledge of factors that could cause fittings to fail

2. Ensuring Electrical Isolation
   a. Knowledge of tools used for verifying isolation and locating shorts
   b. Know how to use tools to test for electrical isolation
   c. Know how to interpret readings from an isolation test

H. Subtasks:

Task A	Installing, replacing, and testing electrical isolation couplings	Domains 1 and 2
Task B	Installing and replacing electrical isolation couplings	Domain 1

I. Span of Control: 1 to 2

COVERED TASK: NFGPA 16 – Installing/Replacing a Corrosion Test Station on a Pipeline

A. Task Description:

Install or replace a test station to allow corrosion monitoring, such as pipe-to-soil potentials to be monitored.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.469, 192.471, and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Elements of this task may include means of ensuring test lead wires have an electrical bond between the wire and the pipe.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Purpose and Type of Test Stations
   a. Knowledge of test station purpose and function
   b. Knowledge of test station types

2. Installing a Test Station
   a. Know how to use properly connect test station wires to the pipeline
   b. Know how to use mechanical means of connecting test station wires to a pipeline
   c. Knowledge of where to locate test stations

3. Repairing a Test Station
   a. Knowledge of wire splicing
   b. Knowledge of wire insulating

H. Subtasks: None

I. Span of Control: 1 to 2

COVERED TASK: NFGPA 17 – Repairing Coating on Steel Pipelines

A. Task Description:

Repair pipe coating on a steel pipe when found to be defective.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.461, 192.479, and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions: See Covered Task11

F. Evaluation Method(s): See Covered Task11

G. Domain and Elements: See Covered Task11

H. Subtasks: See Covered Task11

I. Span of Control: 1 to 2

COVERED TASK: NFGPA 18 - Conducting Gas Leakage Surveys

A. Task Description:

Use leak detection equipment, mobile or walking, to conduct transmission, main, service line, business district or non-business district leakage surveys.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, 192.706, and 192.723
This task can affect the operation or integrity of the pipeline.

C. Discussion:

All leakage surveys, including vegetation surveys are Covered Tasks. Vegetation surveys are not allowed to be counted as leakage surveys under the specific leakage survey Sections 49 CFR 192.706 and 192.723; however, 192.605(b)(1) requires each operator's O&M plan to address leakage surveying and some operators specify that special leakage surveys will be done by vegetation survey. We believe that this meets the intent of the negotiated rulemaking committee for a task to be regulated under 49 CFR 192.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

1. Online examination with reasonable accommodation
2. Performance simulation/demonstration

G. Domain and Elements:

1. Mobile Surveys
   a. Knowledge of equipment and resources used in mobile surveys
   b. Knowledge of factors and conditions affecting accuracy of mobile survey results
   c. Knowledge of appropriate responses to situations hindering mobile surveys

2. Walking Surveys
   a. Knowledge of transmission and main survey practices
   b. Knowledge of equipment used and service survey practices
   c. Knowledge of business district survey practices
   d. Demonstrate procedure for performing a walking survey

3. Portable Combustible Gas Indicator (CGI)
   a. Knowledge of equipment used in either interior jurisdictional piping leak surveys or purging interior piping into and out of service.

4. Inspection for atmospheric corrosion
   a. Understand basic properties and characteristics of atmospheric corrosion.
   b. Know where and how to check for atmospheric corrosion.
   c. Know how to use tools (e.g. visual comparator) to evaluate the severity of atmospheric corrosion.

5. Leak survey of interior piping
   a. Know where and how to survey interior piping for leaks.
   b. Knowledge of survey practices, including how to react to an indication of a gas leak found during a leak survey.
   c. Know how to react to restricted access into a building in connection with conducting a leak survey.
   d. Demonstrate ability to conduct an interior piping survey, including proper use of the survey equipment.

H. Subtasks: NFGPA 18B/19B

Test A	Mobile and walking surveys	Domains 1 and 2
Test B	When meter is inside only	Domains 3, 4, and 5

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 19 - Patrolling and Inspecting Pipelines

A. Task Description:

Inspect the pipeline by foot, vehicle, or aerial means

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, 192.705, 192.707 and 192.721
This task can affect the operation or integrity of the pipeline.

C. Discussion:

In addition to inspecting the pipeline, this task includes: inspection of surface conditions on or adjacent to the pipeline right of way, construction activity, and other conditions that might affect safety and operations of the pipeline. This task also includes the installation and maintenance of pipeline markers.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Medium
Complexity of Task	Low
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Pipeline Right-of-Way Inspections a. Knowledge of right-of-way surface conditions indicating a potential leak

2. Pipeline Markers
   a. Knowledge of pipeline marker installation practices
   b. Knowledge of maintenance practices for pipeline markers
   c. Knowledge of specifications for pipeline marker signs

3. Exposed/Above Ground Mains
   a. Knowledge of facility inspection requirements

H. Subtasks: None

I. Span of Control: 1 to 2.

COVERED TASK: NFGPA 20 - Investigating Leak/Odor Complaints

A. Task Description:

Pinpoint the source of reported gas odors or leaks inside or outside of buildings. Classify the severity of reported gas odors or leaks inside or outside of buildings.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605 and 192.615
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Fundamentals of Leak Investigation
   a. Knowledge of equipment used in investigating leak or odor complaints
   b. Knowledge of alternate ways of detecting leaks
   c. Knowledge of other sources of odor complaints

2. Outside Leak and Odor Complaints
   a. Knowledge of pinpointing procedure
   b. Knowledge of leak migration

3. Inside Leak and Odor Complaints
   a. Knowledge of inside leak detection methods
   b. Knowledge of evacuation and ventilation procedures

4. Documentation
   a. Knowledge of documentation requirements for leak or odor investigations

5. Leak Classification
   a. Know how to classify Grade/Type 1 leaks
   b. Know how to classify Grade/Type 2 leaks
   c. Know how to classify Grade/Type 3 leaks

H. Subtasks:

Test A	Inside and outside leak investigation	Domains 1 - 4
Test D	Leak classification	Domain 5

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 21 - Line Locating and Mark Out

A. Task Description:

Locate and mark an operator's underground natural gas mains and services, including One Call locates.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605 and 192.614
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

1. Online examination with reasonable accommodation
2. Performance simulation/demonstration

G. Domain and Elements:

1. Marking
   a. Knowledge of marking colors
   b. Knowledge of where to mark

2. Fundamentals of Locating
   a. Demonstrate ability to read maps
   b. Knowledge of alternate methods used when maps are not available or are not correct
   c. Knowledge of the effects of soil characteristics on locating
   d. Knowledge of electromagnetic characteristics
   e. Knowledge of documentation requirements

3. Conductive Locating
   a. Knowledge of the conductive method
   b. Knowledge of grounding techniques
   c. Demonstrate locating process using the conductive method

4. Inductive Locating
   a. Knowledge of the inductive method
   b. Demonstrate locating process using the inductive method

5. State Damage Prevention Regulations
   a. Knowledge of State One Call regulations
   b. Knowledge of State facility marking requirements

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 22 - Inspection of 3rd Party Excavations for Damages

A. Task Description:

Inspect for potential damage and/or encroachment of an operator's pipeline at a third party excavation.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, 192.614 and 192.755
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Pipe Separation and Depth
   a. Know how to identify perpendicular and parallel trench conditions of encroachment
   b. Knowledge of pipe depth requirements
   c. Knowledge of utility separation requirements

2. Inspecting for Adequate Pipeline Support
   a. Know how to identify inadequate bracing of a pipeline
   b. Know how to identify undermined pipelines
   c. Knowledge of proper blasting operations around a pipeline facility

3. Excavator and Operator Practices
   a. Knowledge of requirements and exemptions for notification of excavations and demolitions
   b. Knowledge of directional bore practices
   c. Knowledge of excavator responsibilities for protecting underground utility lines and locate markings
   d. Know facility information needed by an operator for facility locating e. Knowledge of operator practices related to abandoned lines

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 23 & 24 - Inspecting the Condition of Exposed Piping or Coating

A. Task Description:

Inspect the condition of the coating and/or the surface of pipeline whenever the Operator learns that one of its pipelines has been exposed by its own or a third party's excavation activities. Also, visually inspect plastic and steel pipe for damage prior to installation of the pipe.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.459, 192.489, and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Low
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Types of Pipe and Coating
   a. Knowledge of the different types of pipe materials
   b. Knowledge of the different types of coating materials

2. Inspecting for Pipe and Coating Damage
   a. Knowledge of external pipe inspection practices
   b. Know how to identify gouges, nicks and scratches
   c. Know how to identify actual facility damage and potential damage due to improper installation
   d. Know how to identify coating damage

H. Subtasks: None

I. Span of Control: 1 to 2.

COVERED TASK: NFGPA 25 - Repair Transmission Line Leaks

A. Task Description:

Repair a transmission pipe using acceptable industry practices, equipment, and materials.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605 and 192.717
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Low
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Assessment of Transmission Pipeline Damage
   a. Know how to determine the type of pipe uncovered
   b. Know how to identify pipeline damage
   c. Know actions to take when pipeline damage is identified

2. Repair of a Transmission Pipeline
   a. Know how to select the appropriate repair method
   b. Knowledge of a mechanical/welded split sleeve installation process
   c. Knowledge of the composite wrap installation process
   d. Knowledge of the hot tap repair process
   e. Know when to contact Dispatch/Gas Control

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 26, 27, 41, & 42 – Lubricating, Repairing, and Operating valves

A. Task Description:

Lubricate, operate, repair, and maintain valves, including the maintenance of remotely and automatically activated valves.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, 192.745, and 192.747
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Lubricating a valve may be assigned and performed independent of code-required valve inspection. When performed as part of a valve inspection, lubrication of the valve is an element of the inspection. When performed outside of a required valve inspection, lubrication of a valve is generally considered “servicing” the valve, which is also required by code. Also, repair of distribution valves necessary for safe operation of the system.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to Task 70
2. Difficult to operate or inoperable valves
3. Presence of gas
4. Valve leak through
5. Inaccessible valve
6. Damaged valve

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Valve Inspection
   a. Knowledge of valve location and accessibility
   b. Knowledge of valve type and specifications (e.g., ratings)
   c. Know when and how to check for the presence of gas
   d. Knowledge of valve box installation and maintenance
   e. Know how to evaluate the physical condition of a valve

2. Valve Operation
   a. Knowledge of number of valve turns
   b. Knowledge of valve position prior to operating
   c. Knowledge of valve functions

3. Valve Lubrication and Repair
   a. Knowledge of the valve lubrication and repair process

4. Abnormal Operating Conditions
   a. Know how to identify and respond to a difficult-to-operate or inoperable valve
   b. Know how to respond to the presence of gas at a valve
   c. Know how to respond to a valve leak through
   d. Know how to respond to an inaccessible valve
   e. Know how to respond when a valve has no markings

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 29 & 30 – Repairing Steel and Plastic Distribution Pipe

A. Task Description:

Repair distribution pipe leaking and not leaking using acceptable industry practices, equipment, and materials.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.309, 192.311, 192.605, 192.703, and 192.753.
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Assessment of Distribution Pipeline Damage
   a. Know how to determine the type of pipe and pipeline uncovered
   b. Know actions to take when pipeline damage is identified

2. Repair of Plastic Pipe
   a. Know how to identify gouges, kinks and scratches
   b. Knowledge of potential sources of ignition
   c. Knowledge of static electricity and steps to prevent it
   d. Know when to replace vs. repair a segment of plastic pipe

3. Repair of Steel Pipe
   a. Know how to identify cause of damage
   b. Know how to select a repair method
   c. Knowledge of the clamp installation process
   d. Knowledge of the coupling installation process
   e. Knowledge of the split sleeve installation process
   f. Know when to replace vs. repair a segment of steel pipe

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 31 – Installing Pipe

A. Task Description:

Install and visually inspect plastic and steel pipe.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.305, 192.307, 192.317, 192.319, 192.321, 192.323, 192.325, 192.327, 192.361, and 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Transportation, Storage, and Handling of Pipe
   a. Understand pipe storage requirements (e.g., ground conditions at job site, stacking)
   b. Know how to move pipe without damaging it (e.g., transporting by truck, hand carrying)

2. Inspection of Pipe
   a. Knowledge of pipe inspection practices (e.g., damage, date of manufacture, when to inspect)
   b. Know how to verify the correct pipe material

3. Pipe Depth
   a. Knowledge of the proper pipe depth requirements

4. Utility Separation
   a. Knowledge of separation requirements from other utilities and structures

5. Pipe Locating Material Installation
   a. Knowledge of the materials used to assist with pipe locating and the installation process (e.g., tracer wire, marker ball)

6. Documentation
   a. Knowledge of the documentation requirements

7. Post-Installation Markings
   a. Knowledge of the locating and marking requirements

8. Weak Links
   a. Knowledge of weak link methods

9. Installing Pipe in an Open Trench
   a. Know how to properly prepare a trench
   b. Know how to minimize plastic pipe stresses
   c. Knowledge of pipe lowering practices

10. Installing Pipe by Horizontal Directional Drill (Drill Rig)
   a. Knowledge of reaming and pull back process
   b. Knowledge of acceptable bend radius and factors affecting bend radius
   c. Know when and in what situations to inspect

11. Installing Pipe by Horizontal Boring (Piercing Tools)
   a. Knowledge of pipe and piercing tool selection
   b. Knowledge of the boring process

12. Installing Pipe by Dead Insertion
   a. Know how to protect pipe during insertion process
   b. Knowledge of the insertion process

H. Subtasks:

Test A	Installation of pipe: general knowledge	Domains 1 - 7
Test B	Installing pipe in an open trench	Domain 9
Test C	Installing pipe by horizontal directional drilling	Domains 8 & 10
Test D	Installing pipe by horizontal boring (piercing tools)	Domains 8 & 11
Test E	Installing pipe by dead insertion	Domains 8 & 12
* Test F	Installing Flexsteel – NFG specs	Domains 1 – 8 & 12

NOTE:
To qualify on Test B, C, D, E an individual must qualify on Test A. An individual who qualifies on Test A may be considered qualified on Task 40 (Installing/Replacing Tracer Wire) because Domain 5 for this task covers the same knowledge as the two Domains for Task 40.

I. Span of Control: 1 to 2.

* To be administered to individuals already qualified in the 4 Flexsteel tasks (see Appendix C) and directly involved with the installation of Flexsteel

COVERED TASK: NFGPA 32 & 33 – Purging a Pipeline In and Out of Service

A. Task Description:

Remove air, inert gas or natural gas from a pipeline.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, and 192.629.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

This task involves displacing natural gas with air or inert gas until the gas concentration is below flammable limits.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to Task 70
2. Excess flow valves (EFVs)
3. Inadequate odorization
4. Incomplete purge

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Purging Fundamentals
   a. Knowledge of the purging purpose
   b. Knowledge of hazards of static electricity in purging a pipeline
   c. Knowledge of the components to ground
   d. Knowledge of the communication requirements
   e. Knowledge of the purging medium

2. Purging Process
   a. Knowledge of vent stack requirements
   b. Knowledge of the vent stack location
   c. Knowledge of the inert gas process
   d. Knowledge of the purge velocity
   e. Know how to secure the required sample readings

3. Abnormal Operating Conditions
   a. Know how to identify and respond to an activated EFV
   b. Know how to identify and respond to inadequate odorization

H. Subtasks: None

I. Span of Control: 1 to 2.

COVERED TASK: NFGPA 34 – Performing Pressure Test on a Pipeline

A. Task Description:

Use air, liquids, natural gas, or inert gas to pressure test a pipe segment for leaks and strength testing.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.503, 192.505, 192.507, 192.511, 192.513, 192.515, 192.517, 192.557, 192.605, and 192.725
This task can affect the operation or integrity of the pipeline.

C. Discussion:

This task may be performed as part of a new installation, replacement, relocation, new service taps, or uprating of a segment's MAOP. For high stress lines, the test is also intended to verify that the pipe, as constructed, has enough strength to withstand pressures well above what it will be exposed to during normal operation.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to Task 70
2. Leak
3. Gauge malfunction

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Pressure Testing Fundamentals
   a. Knowledge of the equipment required for pressure testing
   b. Knowledge of the appropriate test pressure
   c. Knowledge of testing duration
   d. Knowledge of the medium used

2. Pressure Testing Process
   a. Knowledge of the pressure testing process
   b. Knowledge of the documentation requirements

3. Pressure Test Design.
   a. Knowledge of sealing ends of pipe
   b. Knowledge of maximum/minimum test pressure
   c. Knowledge of bleed-off/pressurize
   d. Knowledge of liquid test medium
   e. Knowledge of de-watering/pigging

4. Abnormal Operating Conditions
   a. Know how to identify and respond to a leak during a pressure test
   b. Know how to identify and respond to a gauge malfunction

H. Subtasks:

Test A	Perform a test on a pipe line	Domains 1, 2, & 4
Test B	Perform a test on a pipe line (advanced methods)	Domains 2, 3, & 4

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 35 – Stopping Gas Flow

A. Task Description:

Temporarily stop the flow of gas through a pipeline, either during routine operations or maintenance, or during an emergency, using acceptable industry practices.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, 192.615, and 192.751.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Methods of stopping gas may include valves, bags, stoppers, squeeze-off tools, and other appropriate methods.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to Task 70
2. Insufficient shut-off
3. Pipe damage
4. Missing coupon

F. Evaluation Method(s):

1. Online examination with reasonable accommodation
2. Performance simulation/demonstration

G. Domain and Elements:

1. Stopping Gas Flow Fundamentals
   a. Knowledge of system flow and pressures
   b. Knowledge of system monitoring during stopping operations
   c. Knowledge of reasons for stopping gas flow
   d. Know how to identify and use valves for gas stopping work

2. Stopping Gas Flow by Bagging
   a. Knowledge of bag/diaphragm selection and inspection
   b. Knowledge of bagging process, including bag installation and removal
   c. Demonstrate bag installation and removal process

3. Stopping Gas Flow by Use of Mechanical Stopping Equipment
   a. Knowledge of equipment and fitting selection
   b. Knowledge of stopping equipment installation and removal process
   c. Demonstrate equipment installation and use process

4. Stopping Gas Flow by Squeeze-off
   a. Knowledge of squeeze-off tool selection, inspection and use
   b. Know how to verify pipe specifications
   c. Knowledge of where to squeeze off
   d. Knowledge of the plastic squeeze-off process
   e. Demonstrate squeeze-off and release process

5. Abnormal Operating Conditions
   a. Know how to identify and respond to insufficient shut-off
   b. Know how to identify and respond to pipe damaged in stopping off gas
   c. Know how to respond to a missing coupon

H. Subtasks:

Test 35 A	Stopping gas flow (bagging and valves)	Domains 1, 2a & 2b, & 5a & 5c
Test 35 B	Stopping gas flow (Mechanical only)	Domains 1a – c, 3a & b, & 5a & 5c
Test 35 C	Stopping gas flow (squeeze-off)	Domains 1a – c, 4a – d, 5a & 5b

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 36, 39, & 47 – Abandonment and Deactivation of Facilities Including the Removal of Service Tees

A. Task Description:

Abandon facilities, physically disconnecting from all sources and supplies of natural gas.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, 192.727, and 192.751.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

This task covers the process for capping live end of pipe and is addressed in tasks 49 and 50.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Fundamentals of Abandonment
   a. Know the differences between abandoned and inactive pipelines

2. Abandonment Process
   a. Knowledge of procedures for abandoning a pipeline
   b. Knowledge of appropriate locations for abandoning a pipeline
   c. Knowledge of abandoned end sealing process

3. Distribution System Characteristics
   a. Know how and why to measure system pressure
   b. Knowledge of pipe material and fittings
   c. Know the importance of system pipe size

4. Fitting Removal Process
   a. Knowledge of the process to remove a fitting on steel pipe

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 37 – Tapping Pipelines under Pressure

A. Task Description:

Cut into a pipeline designed to transport natural gas using specialized tapping equipment ("hot tap").

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, 192.627.
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to Task 70
2. Specialized equipment failure
3. Dropping the coupon
4. Wall thickness irregularity
5. Pressure test failure

F. Evaluation Method(s):

1. Online examination with reasonable accommodation
2. Performance simulation/demonstration

G. Domain and Elements:

1. Tapping a Plastic Pipeline with Specialized Equipment
   a. Knowledge of the fittings used for tapping
   b. Knowledge of the tapping process
   c. Know how to identify and respond to a tapping failure
   d. Know how respond to a dropped coupon
   e. Demonstrate the tapping process

2. Tapping a Steel Pipeline with Specialized Equipment
   a. Knowledge of the fittings used for tapping
   b. Knowledge of the tapping process
   c. Know how to identify and respond to a tapping failure
   d. Know how respond to a dropped coupon
   e. Know how to identify and respond to wall thickness irregularities
   f. Demonstrate the tapping process

H. Subtasks:

37 A	Tapping Plastic Pipe with Specialized Equipment	Domain 1a - d
37 B	Tapping Steel Pipe (medium/high pressure)	Domain 2a - e
37 C	Tapping Steel Pipe (low pressure)	Domain 2a, b, c, & e

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 38 – Starting Up or Shutting Down Any Part of the Pipeline that Could Cause MAOP to be Exceeded

A. Task Description:

All activities required to start up or shut down a pipeline when MAOP could be exceeded.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

This task may be performed to remove a pipe section from service, put a pipe section into service, as well as in starting up and shutting down of compressors. This may occur under normal operating conditions or emergency situations.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to Task 70
2. Shutdown is not achieved
3. MAOP exceeded
4. Unexpected pressure changes

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Valves
   a. Knowledge of the valves to be operated for startup and shutdown
   b. Know how to inspect valves and verify valve operation before startup or shutdown

2. Gas Flow and Pressure
   a. Know how to monitor pressures in adjacent pipeline sections
   b. Know when and what to communicate to Gas Control

3. Abnormal Operating Conditions
   a. Know how to identify and respond when a shutdown is not achieved
   b. Know how to identify and respond when MAOP is exceeded
   c. Know how to identify and respond to unexpected pressure changes

H. Subtasks: None

I. Span of Control: 1 to 2.

COVERED TASK: NFGPA 39 – Removing Service Tee or Fitting from Steel Pipe

A. Task Description:

Remove service tees or fittings (including plugs or drip risers) from steel pipe.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, and 192.751.
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Distribution System Characteristics
   a. Know how and why to measure system pressure
   b. Knowledge of pipe material and fittings
   c. Know the importance of system pipe size

2. Fitting Removal Process
   a. Knowledge of the process to remove a fitting on steel pipe

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 40 – Installing/Replacing Tracer Wire

A. Task Description:

Install or replace plastic pipe locating materials.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.321, and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Low
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions:

1. Refer to Task 70
2. Tracer wire failure

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Installation of Pipe Locating Materials
   a. Know how to install tracer wire
   b. Know how to install marker balls

2. Abnormal Operating Conditions
   a. Know how to respond to tracer wire failure

H. Subtasks: None

NOTE:

The domains and elements for this task are also covered in Domain 5 for Task 31 (Installing Pipe). An individual who qualifies on Task 31/Test A (Installation of pipe: general knowledge) may be considered qualified on Task 40. This determination is made by the Operator.

I. Span of Control: 1 to 3.

COVERED TASK: NFGPA 47 – Abandoning a Gas Service Line

A. Task Description:

Permanently disconnect from service a line that no longer transports gas to a customer.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605 and 192.727
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Low
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions: See Covered Task 36

F. Evaluation Method(s): See Covered Task 36

G. Domain and Elements: See Covered Task 36

H. Subtasks: None

I. Span of Control: 1 to 2.

COVERED TASK: NFGPA 48 - Stainless steel Tubing and Tube Fitting Installation

A. Task Description

Preparation, bending, joining and installation of instrument, control and sampling line tubing and tube fittings.

B. Application of the Three-part Test for Covered Tasks

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.203 and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions

1. Refer to Task 70
2. Failed Leak of Soap Test
3. Material Defects
4. Improper Installation

F. Evaluation Method(s)

1. Online examination with reasonable accommodation
2. Performance simulation/demonstration

G. Domains and Elements

1. Fitting Preparation and Installation
   a. Know how to prepare fitting for installation
   b. Know how to properly install fitting

2. Tube Design, Fabrication and Installation
   a. Know how to prepare, bend and install tubing into tube fitting
   b. Know the effects of vibration and thermal stresses on tubing, tube fittings and how to minimize those effects
   c .Know how to properly install adequate tubing support
   d. Know to apply good design practices for the routing of tubing and location of fittings
   e. Demonstrate bending of tubing
   f. Demonstrate installation of tubing into tube fittings

3. Tools
   a. Know how to properly use a tube bender
   b. Know how to properly use a tube cutter
   c. Know how to properly use a tube deburring tool
   d. Demonstrate the proper use of a tube bender
   e. Demonstrate the proper use of a tube cutter
   f. Demonstrate the proper use of a tube deburring tool

4. Abnormal Operating Conditions
   a. Know how to recognize and react to a failed leak or soap test
   b. Know how to identify and react to material defects
   c. Know how to identify and react to improperly installed tubing or tube fitting

H. Subtasks: None

I. Span of Control: 1 to 1

COVERED TASK: NFGPA 49 – Mechanical Joining of Pipe Other Than Plastic

A. Task Description:

Join pipe materials, other than plastic, by means other than fusion or welding.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.273, 192.275, 192.277, 192.279 and 192.605
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions:

1. Refer to Task 70
2. Failed leak or soap test

F. Evaluation Method(s):

1. Online examination with reasonable accommodation
2. Performance simulation/demonstration

G. Domain and Elements:

1. Pipe Preparation
   a. Know how to prepare pipe for fitting installation

2. Compression Fitting
   a. Knowledge of fitting types
   b. Knowledge of fitting installation
   c. Demonstrate fitting installation process

3. Flange Fitting
   a. Knowledge of fitting types
   b. Knowledge of fitting installation

4. Threaded Fitting
   a. Knowledge of fitting types
   b. Knowledge of fitting installation

5. Abnormal Operating Conditions
a. Know how to identify a failed soap or leak test
b. Know how to respond to a failed soap or leak test

H. Subtasks: None

I. Span of Control: 1 to 1

COVERED TASK: NFGPA 50 – Joining Plastic Pipe

A. Task Description:

Join plastic pipe by heat fusion or mechanical joints including visual inspection of a completed plastic pipe joint for each joining method.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.281, 192.285, and 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Note that Title 49 CFR 192 Subpart N does not replace existing plastic pipe joining annual qualification requirements found in Subpart F; plastic pipe joiners must comply with both. CFR 192.285(c) stipulates that a person must be re-qualified under an applicable procedure once each calendar year at intervals not exceeding 15 months, or after any production joint is found unacceptable by testing under 192.513.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to Task 70
2. Material defects
3. Equipment malfunctions
4. Improper fusions

F. Evaluation Method(s):

1. Online examination with reasonable accommodation
2. Performance simulation/demonstration

G. Domain and Elements:

1. Static Electricity on Plastic Pipe
   a. Knowledge of the causes of static electricity on plastic pipe
   b. Knowledge of the hazards of static electricity and related safety procedures
   c. Know how to eliminate static electricity on plastic pipe

2. Fundamentals of Butt Fusion
   a. Knowledge of job set-up and pipe preparation for butt fusion
   b. Know how to visually inspect a butt fusion joint

3. Manual Butt Fusion
   a. Knowledge of the manual butt fusion process
   b. Demonstrate manual butt fusion process

4. Hydraulic Butt Fusion
   a. Knowledge of the hydraulic butt fusion process
   b. Demonstrate hydraulic butt fusion process

5. Saddle Electrofusion Fusion
   a. Knowledge of the pipe preparation process
   b. Knowledge of the saddle electrofusion fusion process
   c. Know how to visually inspect a saddle electrofusion fusion joint
   d. Demonstrate saddle electrofusion fusion process

6. Electrofusion
   a. Knowledge of the pipe preparation process
   b. Knowledge of the electrofusion process
   c. Know how to visually inspect an electrofusion joint
   d. Demonstrate electrofusion coupling process
   e. Demonstrate electrofusion tee process

7. Mechanical Joining of Plastic Pipe
   a. Knowledge of the pipe preparation process
   b. Knowledge of mechanical fittings installation process
   c. Demonstrate installation of a stab fitting
   d. Demonstrate installation of a compression fitting
   e. Demonstrate installation of a bolted fitting
   f. Demonstrate installation of a nut follower (threaded fitting) mechanical coupling

8. Abnormal Operating Conditions
   a. Know how to recognize and respond to material defects
   b. Know how to recognize and respond to equipment malfunctions
   c. Know how to recognize and respond to improper fusions

H. Subtasks:

Test A	General Knowledge (static electricity and AOC's)	Domains 1 and 8
Test B	Mechanical Couplings	Domain 7
Test C	Electrofusion	Domain 5 and 6
Test D	Hydraulic butt fusion	Domain 2 and 4
Test E	Manual butt fusion	Domain 2 and 3

Notes:

1. To qualify on Test B, C, D, and E, an individual must qualify on Test A.
2. To quality on Test D an individual must also qualify on Test E.

I. Span of Control: 1 to 0.

COVERED TASK: NFGPA 51 – Installing Tapping Tee on Pipe

A. Task Description:

Install a tapping tee and perform tapping function (self-tapping tee) on pipe.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.273, 192.281, 192.285, 192.287, and 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Note that Title 49 CFR 192 Subpart N does not replace existing plastic pipe joining annual qualification requirements found in Subpart F; plastic pipe joiners must comply with both. CFR 192.285(c) stipulates that a person must be re-qualified under an applicable procedure once each calendar year at intervals not exceeding 15 months, or after any production joint is found unacceptable by testing under 192.513.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

1. Online examination with reasonable accommodation
2. Performance simulation/demonstration

G. Domain and Elements:

1. Mechanical Joining of Plastic Pipe (see Covered Task50)

2. Electrofusion (see Covered Task 50)

3. Saddle Fusion (see Covered Task 50)

4. General Knowledge of Self-Tapping Tees
   a. Knowledge of the fittings used for tapping
   b. Know how to inspect, install, and test self-tapping tees
   c. Know how to respond to a pressure test failure

5. Tapping Using Plastic Self-Tapping Tees
   a. Knowledge of the tapping process using self-tapping plastic tees
   b. Know how to ensure serviceability of plastic tees before installation
   c. Demonstrate the tapping process using a self-tapping tee

6. Tapping Using Steel Self-Tapping Tees
   a. Knowledge of the tapping process using self-tapping steel tees
   b. Demonstrate the tapping process using a self-tapping tee

H. Subtasks: None

See Covered Task 50: Test A (General knowledge)
Test B (Mechanical couplings)
Test C (Electrofusion)
Test D (Saddle Fusion)

Note:

Historically, the tasks of tapping using specialized equipment and tapping using self- tapping tees were integrated for the purpose of qualifying on tapping. Qualification requirements for Task 37 included a knowledge evaluation covering both specialized equipment and self-tapping tees, plus a performance evaluation for the more advanced skill of tapping with specialized equipment. Effective January 23, 2017, separate qualification requirements were established for Tasks 37 and 51, such that each task now has its own knowledge evaluation and its own performance evaluation. Upon passing the current qualification requirements for Task 37, individuals who last qualified on Task 37 prior to January 23, 2017 shall remain qualified on the use of self-tapping tees until such time as their last Task 37 qualification expires. In short, *requalifying* on current Task 37 does not immediately nullify an individual's qualification on the task of tapping with self-tapping tees.

I. Span of Control: 1 to 0.

COVERED TASK: NFGPA 52 – Inspecting Plastic Pipe Joint

A. Task Description:

Visually inspect a completed plastic pipe joint.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.273, 192.287, and 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Visually inspecting a plastic pipe fusion joint in a shop during qualification tests is NOT a Covered Task.

Visually inspecting a plastic pipe fusion joint after that joint has been placed into service is a Covered Task. As such, inspection of plastic fusion joints to vintage plastic materials such as Aldyl A, Driscopipe 7000, and Driscopipe 8000 materials are Covered Tasks.

Note that Title 49 CFR 192 Subpart N does not replace existing plastic pipe joining qualification requirements found in Subpart F; plastic pipe joiners must comply with both.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions:

1. Refer to task 70
2. Unacceptable joint

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Butt Fusion
   a. Know how to visually inspect a butt fusion joint
   b. Know how to respond when an unacceptable butt fusion joint is identified

2. Saddle/Side Wall Fusion
   a. Know how to visually inspect a saddle fusion joint
   b. Know how to respond when an unacceptable saddle fusion joint is identified

3. Socket Fusion
   a. Know what to visually inspect for on a Socket fusion
   b. Know how to respond when an unacceptable socket fusion joint is identified

H. Subtasks: None

For **Joiners** only (See Covered Task 50)

Test A	General knowledge (static electricity and AOCs)
Test C	Electrofusion
Test D	Hydraulic butt fusion
Test E	Manual butt fusion
Test F	Saddle fusion
Test G	Socket fusion

NOTE: Joiners who qualify on Task 50 are automatically qualified on Task 52

I. Span of Control: 1 to 0.

COVERED TASK: NFGPA 55 – Maintaining a Pipeline Compressor Station

A. Task Description:

Perform routine maintenance associated with pipeline compressor stations, which may be performed on site or from a remote location.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, 192.731, 192.735, and 192.736.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

This task does not include gas compressors at CNG refueling stations, air compressors powering pneumatic tools or used for other purposes, or other non-pipeline compressors.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to task 70

F. Evaluation Method(s):

Performance simulation/demonstration at compressor station

G. Domain and Elements: Not Applicable

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 56 – Operating a Pipeline Compressor Station

A. Task Description:

Perform activities associated with the operations of a pipeline compressor station, which may be performed on site or from a remote location.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

This task does not include gas compressors at CNG refueling stations, air compressors powering pneumatic tools or used for other purposes, or other non-pipeline compressors.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to task 70

F. Evaluation Method(s):

Performance simulation/demonstration at compressor station

G. Domain and Elements: Not Applicable

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 57 – Repairing a Compressor

A. Task Description:

Perform major maintenance and overhaul associated with pipeline compressors.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

This task does not include gas compressors at CNG refueling stations, air compressors powering pneumatic tools or used for other purposes, or other non-pipeline compressors.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Medium
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to task 70

F. Evaluation Method(s):

Performance simulation/demonstration at compressor station

G. Domain and Elements: Not Applicable

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 58 – Maintaining Gas Detection Systems and Alarms in Compressor Stations

A. Task Description:

Test, calibrate, and maintain gas detection equipment in compressor stations.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, and 192.736.
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions:

Refer to task 70

F. Evaluation Method(s):

Performance simulation/demonstration at compressor station

G. Domain and Elements: Not Applicable

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 59 & 60 – Controlling and Monitoring Gas Pressures and Flows & Operating Remote Control Valves

A. Task Description:

Manage the gas distribution system, maintaining adequate flow and pressure to all customers. This may include monitoring flow and pressure indicators, responding to alarms, ensuring adequate pressures in all parts of the distribution system and remotely opening and closing valves or operating other equipment. Even at a control room remote from the pipeline, the switches, gauges, and alarms are connected to the components that they monitor and/or operate and therefore are considered part of the pipeline facility.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, 192.619, 192.621, 192.623, and 192.631
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Even at a control room remote from the pipeline, the switches, gauges, and alarms are connected to the components that they monitor and/or operate and therefore are considered part of the pipeline facility. 49 CFR 192.619, 192.621, and 192.623 require that pressures be maintained at or below the MAOP.
A remotely controlled valve (whether operated from a control room or by a modem sending a signal to cause a valve to close) is an appurtenance to the pipeline—much like the wheel on the valve itself—and therefore considered part of the pipeline facility. As such, opening and closing valves is an operations task.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to task 70
2. High/low flow alarm
3. Fluctuating flow rate or pressure
4. Loss of communication
5. Inability to raise/lower system pressure or flow

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Fundamentals of Pressure Regulation
   a. Knowledge of gas flow (volume) measurement
   b. Knowledge of pressure measurement
   c. Knowledge of overpressure protection devices

2. Control Valves and Regulators
   a. Knowledge of Types
   b. Knowledge of Operating Characteristics

3. Gas Flow and Pressure Limits
   a. Knowledge of MAOP Pressures
   b. Knowledge of System Minimum Operating Pressures
   c. Knowledge of How to Raise and Lower System Pressures Safely
   d. Knowledge of Gas Flow and Pressure Control

4. Alarms
   a. Knowledge of Alarm Limits
   b. Knowledge of Types of Alarms
5. Equipment and Data
   a. Knowledge of How to Recognize Faulty Equipment and Data

6. Abnormal Operating Conditions
   a. Know how to respond to a high/low flow alarm
   b. Know how to identify and respond to a fluctuating flow rate or pressure
   c. Know how to identify and respond to an inability to raise or lower system pressure or flow
   d. Know how to identify and respond to a loss of communication

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 61 – Inspecting a Pressure Recording Gauge

A. Task Description:

Inspect a pressure recording gauge.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, 192.739, and 192.741.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

This task is generally performed in conjunction with the Covered Task, “Inspecting and Testing a Pressure Regulator Station.” However, if assigned independent of that task, the “Inspecting a Pressure Recording Gauge” task may include:

- Verify pen remains on line throughout entire range sweep
- Pressurize gauge to normal range, verify recorder calibration
- Adjust span, if necessary to calibrate
- Blow down pressure to zero and confirm chart reading
- Zero out recorder, if necessary
- Inspect gauge lines and mount
- Inspect for watertight seal

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Visual Inspection
   a. Knowledge of the purpose and components of a pressure recording gauge
   b. Know how to inspect a pressure recording gauge

2. Verification of Readings
   a. Knowledge of equipment used to verify pressure readings
   b. Know how to verify the proper operation and accuracy of a pressure recording gauge

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 62, 63, and 65 – Inspect and Test a Pressure Regulator Station, Including Heating Equipment

A. Task Description:

Inspect and test equipment located at pressure regulator stations.
Verify that pressure regulators and relief valves designed to prevent pressure from exceeding the MAOP at a pressure regulator station are set to operate at the proper pressure and are working properly.
Install and/or regulate the flow of gas around a pressure regulator during maintenance of the regulator or for other reasons.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, 192.619, 192.621, 192.623, 192.739, 192.741, and 192.743
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to task 70
2. Failed leak or soap test

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1 System Feed and Gas Flow
- a. Know how to distinguish between single and multiple feeds
- b. Knowledge of dynamic loads (time of day, peak days, temperature, large customers)
- c. Knowledge of gas temperature and velocity

2. Regulator Station Facility
- a. Know what information is required on the station sign
- b. Knowledge of protection requirements at a regulator station (e.g. environmental, vehicular, overhead obstructions)
- c. Know how to identify the station's inlet/isolation valve
- d. Know how to identify and update station records

3. Regulator Station Components and Operation
a. Knowledge of the functions and operation of valves at regulator station
b. Know how to inspect and test a regulator's internal components and how to adjust the set point
c. Know how to inspect a regulator station rain cap
d. Knowledge of vents/screens and how to inspect them
e. Knowledge of gas filters and how to inspect and clean them
f. Knowledge of pipe and tubing supports and how to inspect them
g. Know how to inspect and test an instrument controller
h. Knowledge of gas heating equipment and how to inspect and test it
i. Know the function of control/sensing lines, where they are installed, and how to inspect them
j. Demonstrate how to inspect, test and operate a regulator station

4. Overpressure Protection Devices
a. Knowledge of the various types of overpressure protection devices and how they function in a regulator station
b. Knowledge of the process to test relief valves
c. Knowledge of the process to test a monitor regulator

5. Abnormal Operating Conditions
a. Know how to identify and respond to a missing lock at a regulator station
b. Know how to identify and respond to a relief valve activated at a regulator station
c. Know how to identify and respond to fence damage at a regulator station
d. Know how to identify and respond to a monitor regulator controlling downstream pressure

H. Subtasks:

Test A	Inspect and Test a Pressure Regulator Station, Including Heating Equipment-Spring Loaded	Domains 1 - 5
Test B	Inspect and Test a Pressure Regulator Station, Including Heating Equipment-Pilot Operated	Domains 1 - 5
Test C	Inspect and Test a Pressure Regulator Station, Including Heating Equipment-Controller Type	Domains 1 - 5
Test D	Inspect and Test a Pressure Regulator Station, Including Heating Equipment-Pneumatic Loaded	Domain 4

I. Span of Control: 1 to 1

COVERED TASK: NFGPA 64 – Inspecting Telemetering Equipment at a Pressure Limiting or Regulating Station

A. Task Description:

Inspect electronic recording gauges and telemetering devices at a pressure limiting or regulator station. Telemetering devices transmit information such as temperature, pressure and flow rate readings from a pressure limiting station or regulator station to a designated facility. Electronic monitoring gauges record and store the data but do not transmit.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, and 192.741.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Inspecting telemetering equipment on pressure limiting and regulating stations is required by 49 CFR Part 192.741. However, inspecting telemetering equipment in other applications on the gas pipeline system is NOT required by any provision in Part 192. Inspecting telemetering equipment other than at pressure limiting and regulating stations therefore is NOT a Covered Task.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Visual Inspection
   a. Knowledge of the components of electronic monitoring and telemetering equipment
   b. Know how to inspect electronic monitoring and telemetering equipment
   c. Knowledge of communication procedures when inspecting electronic monitoring or telemetering equipment

2. Verification of Readings
   a. Knowledge of equipment used to take and verify pressure readings
   b. Know how to verify the proper operation and accuracy of electronic monitoring and telemetering equipment

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 66 – Interpret Pressure Recording Charts

A. Task Description:

Review data obtained from a recording chart or electronic device as they pertain to system operations.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, and 192.741
This task can affect the operation or integrity of the pipeline.

C. Discussion:

This is a Covered Task if the recording chart is evaluated on site; evaluation of a recording chart is not a Covered Task when performed off the pipeline facility.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions:

1. Refer to task 70
2. Recording device abnormalities
3. Outlet pressure switches to monitor regulator settings

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Fundamentals of Pressure Regulation
   a. Knowledge of gas flow (volume) and pressure measurement
   b. Knowledge of system feeds

2. Interpretation of Paper Recording Charts
   a. Know how to interpret paper recording charts

3. Abnormal Operating Conditions
   a. Know how to identify paper recording chart abnormalities
   b. Know how to determine that outlet pressure switches to the monitor regulator settings

H. Subtasks: None

I. Span of Control: 1 to 2.

COVERED TASK: NFGPA 68 – Operating an Odorizer

A. Task Description:

Control the amount of odorant added to flowing gas by filling and adjusting an odorizer.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605, and 192.625.
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Low
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Odorant Properties and Use
   a. Knowledge of odorant make-up, handling, and storage
   b. Explain how and why odorant is added to natural gas

2 .Safety Measures
   a. Know how to interpret the NFPA placard for odorant
   b. Knowledge of steps to be taken to prevent an accident

3. Odorizer
   a. Knowledge of the different types of odorizers (wick, bypass, and injection)
   b. Know how to determine the proper odorant injection rate
   c. Knowledge of the odorant tank and associated fittings
   d. Knowledge of overpressure protection

4. Transfer and Release of Odorant
   a. Knowledge of procedures for transferring odorant
   b. Know how to isolate an odorant system
   c. Know how to handle controlled release of odorant

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 69A – Monitoring Natural Gas Odorization Levels

A. Task Description:

Measure and record the concentration of odorant in natural gas.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605 and 192.625.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

The odorant monitoring task requires the use of special equipment capable of detecting and measuring the level of odorant in natural gas.
Note: This task involves written and performance evaluations that are administered in different cycles. The written evaluation is a three-year cycle. The performance evaluation is a one-year cycle. Successful completion of both the WE & PE is required for the individual to be qualified.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to task 70
2. Odor fade
3. No odor
4. Odor level evaluating tool malfunction

F. Evaluation Method(s):

1. Online examination with reasonable accommodation
2. Company-specific performance test. Documentation of the Company-specific performance test is maintained by the Operator

G. Domain and Elements:

1. The Odor Level Monitoring Tool
   a. Know how to operate an odor level monitoring tool
   b. Knowledge of the maintenance requirements for an odor level monitoring tool

2. Test Point Locations
   a. Knowledge of the proper test locations and sampling points
   b. Knowledge of environmental factors/external conditions

3. Odor Level Monitoring
   a. Know how to perform a sniff test
   b. Know how to interpret odorant/olfactory levels
   c. Knowledge of the Code-approved method for odor level monitoring
   d. Knowledge of documentation requirements for a sniff test
   e. Demonstrate ability to perform a sniff test

H. Subtasks: None

I. Span of Control: 1 to 0.

TASK NFGPA 69B: Monitor Natural Gas Odorization Levels – Sniff Test

A. Task Description:

Measure and record the concentration of odorant in natural gas.

B. Application of the three part test for covered tasks:

This task is not performed on a pipeline facility.
This task is not performed as a requirement of 49 CFR 192.625
This task cannot affect the operation or integrity of the pipeline.

C. Discussion:

This test is simply to smell the gas and determine if the odorant level is adequate.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Low
Risk or Consequence of Performing Task Incorrectly	Medium

E. Abnormal Operating Conditions:

Refer to task 70

F. Evaluation Method(s):

Ability

G. Domain and Elements:

1. Sniff test
   a. Ability to perform a qualitative sniff test.

H. Subtasks: None

I. Span of Control: 1 to 0.

COVERED TASK: NFGPA 70 – Identifying and Responding to Abnormal Operating Conditions and Unsafe Conditions, and Knowledge of Properties of Natural Gas

A. Task Description:

Identify and respond to an abnormal operating condition (AOC), during the performance of a Covered Task. An AOC is a condition identified by the Operator that may indicate a malfunction of a component or deviation from normal operations that may:

- Indicate a condition exceeding design limits
- Result in a hazard(s) to persons, property, or the environment.

This task also covers identifying and responding to unsafe conditions and knowing the properties of natural gas.

B. Application of the three part test for covered tasks:

This is not a Covered Task because it is not performed on a pipeline facility.
This task is a requirement under 49 CFR 192.605, and 192.803.
This task can affect the operation or integrity of the pipe line.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	High
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Over pressure: Pressure that exceeds the operating limits of the gas system
2. Inadequate pressure: Pressure that falls below the normal operating requirements of the gas system
3. Unintentional ignition: The uncontrolled ignition of natural gas
4. Explosion
5. Component failure: Failure of a component of the pipeline to perform in the manner for which it was designed
6. Damage to facility: Any damage to a pipeline component
7. Improper odorization: Excessive or inadequate odorization of a gas system
8. Escaping/blowing Gas: Any unplanned, uncontrolled escape of gas
9. Unplanned exposed pipe
10. Unmarked facilities

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Abnormal Operating Conditions
   a. Know how to recognize and respond to an over pressure condition
   b. Know how to recognize and respond to an inadequate pressure condition
   c. Know how to recognize and respond to unintentional ignition
   d. Know how to respond to an explosion
   e. Know how to respond to a component failure
   f. Know how to recognize and respond to damage to a facility
   g. Know how to recognize and respond to improper odorization
   h. Know how to recognize and respond to escaping gas
   i. Know how to recognize and respond to unplanned exposed facilities
   j. Know how to respond to unmarked facilities

2. Properties of Natural Gas
   A. Knowledge of the chemical components of natural gas
   b. Knowledge of the properties of natural gas
      (i) Toxicity
      (ii) Odor
      (iii) Color
      (iv) Compressibility
      (v) Energy content
      (vi) Specific gravity
   c. Knowledge of natural gas ignition sources
   d. Knowledge of the combustion range for natural gas

H. Subtasks: None

I. Span of Control: Not Applicable.

COVERED TASK: NFGPA 71 – Operator Excavating and Backfilling in the Vicinity of a Pipeline

A. Task Description:

Excavate and backfill a gas pipeline facility.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.327, 192.361, and 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

This task includes providing adequate pipeline support during excavation and backfilling.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

Refer to task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Excavation
   a. Knowledge of facility marking colors
   b. Understand the need to protect and support underground lines

2. Backfilling
   a. Knowledge of backfilling materials
   b. Knowledge of the compaction process

3. Abnormal Operating Conditions
   a. Know how to respond to facility marking issues
   b. Know how to respond to improper soil conditions
   c. Know how to respond to an unknown facility

4. Damage Prevention Regulations
   a. Know when a One Call ticket is required
   b. Know how to initiate a One Call ticket prior to excavating
   c. Knowledge of damage prevention requirements before an excavation can begin

H. Subtasks: None

I. Span of Control: 1 to 3.

COVERED TASK: NFGPA 72 – Installing and Turning off Residential, Small Commercial, Large Commercial and Industrial Meters and Regulators

A. Task Description:

Install customer meters and regulators, including, transporting, hanging/setting or replacing the equipment. This task also includes the insulator requirements for corrosion protection.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.353, 192.355, 192.357, and 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Attaching a meter bracket is not part of this task. This task covers a typical residential and commercial regulator installation. Distribution regulators (e.g., pilot, worker monitor) are covered under task 62.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to task 70
2. Requisite: Identifying and reacting to meter assembly abnormal operating conditions
3. Stray current
4. Valve malfunction
5. Lack of odorant smell during purging
6. Improper grounding/bonding to meter assembly
7. Meter documentation discrepancy

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Meter Transportation
   a. Know how to transport a meter

2. Residential and Small Commercial Diaphragm Meters
   a. Knowledge of a meter's components and purpose
   b. Knowledge of how residential and small commercial meters operate
   c. Know how to install a residential or small commercial meter

3. Large Commercial and Industrial Meters
   a. Knowledge of types of large commercial/industrial meters
   b. Knowledge of how large commercial/industrial meters operate
   c. Know how to install a large commercial or industrial meter

4. Regulators
   a. Knowledge of types of regulators and their components
   b. Know how to install a regulator
   c. Know how to select a regulator
   d. Know how to adjust regulator pressure

5. Valves
   a. Know how to identify a riser valve
   b. Know how to identify the operating position of a valve
   c. Know how to prevent riser valve tampering

6. Meter Purging
   a. Knowledge of basic meter purging procedures

7. Abnormal Operating Conditions Related to Meters and Regulators
   a. Know how to respond to a valve malfunction
   b. Know how to respond to a meter documentation discrepancy
   c. Know how to respond to other abnormal operating conditions (e.g., no odorant smell, stray current and improper grounding to meter assembly)

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 84 – Bending of Steel Pipe

A. Task Description:

This task includes the field bending of steel pipe as specified and inspection of completed field bends.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.313, 192.315, and 192.605.
This task can affect the operation or integrity of the pipeline.

C. Discussion:

Refer to GPTC Guide material 192.313 Bends and elbows for evaluation guidelines.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Medium
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	medium

E. Abnormal Operating Conditions:

Refer to task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Pipe Bending Purposes and Tools
   a. Knowledge of pipe bending purposes and tools

2. Types and Characteristics of Pipe Bends and Welds
   a. Knowledge of types and characteristics of pipe bends and welds

3. Inspection Requirements
   a. Knowledge of the inspection requirements

H. Subtasks: None

I. Span of Control: 1 to 1.

COVERED TASK: NFGPA 85 – Identifying and Reacting to Meter Assembly Abnormal Operating Conditions

A. Task Description:

Identify and respond to an abnormal operating condition (AOC) found near a meter assembly.

An AOC is a condition identified by the Operator during the performance of a Covered Task that may indicate a malfunction of a component or deviation from normal operations that may:

- Indicate a condition exceeding design limits; or
- Result in a hazard(s) to persons, property, or the environment.

B. Application of the three part test for covered tasks:

This task is performed on a pipeline facility.
This task is performed as a requirement of 49 CFR 192.605 and 192.803
This task can affect the operation or integrity of the pipeline.

C. Discussion: None

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to task 70
2. Inadequate support placing stress on a meter assembly
3. Structure over a gas facility
4. Incorrect depth of cover on a gas facility
5. Atmospheric corrosion
6. Improper meter assembly venting
7. Inadequate vehicle meter barrier protection
8. Unsafe customer owned piping
9. Improper inside meter location
10. Abnormal meter operations
11. Partially open meter valve
12. Pipe plug missing

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Meter Components
   a. Know how to identify the components of a residential, commercial, and industrial meter

2. Facilities AOCs
   a. Know how to identify structures over a gas facility
   b. Know how to identify incorrect depth of cover on a gas facility (unplanned exposed pipe, evidence of unplanned buried facility, and incorrect depth of facility)

3. Meter AOCs
   a. Know how to identify proper inside meter location (e.g., meter spacing from heat source and required ventilation)
   b. Know how to identify abnormal meter operations (e.g., unusual sounds or dial movement)

4. Regulator AOCs
   a. Know how to identify improper regulator venting (e.g., obstructed vent and distance to building opening)
   b. Know how to identify improper regulator vent installation

5. Piping AOCs
   a. Know how to identify inadequate meter support and indications of stress on piping (e.g., stress on outlet piping, riser, and non-rigid piping connections)
   b. Know how to identify a missing pipe plug
   c. Know how to identify unsafe customer piping
   d. Know how to identify indications of potential atmospheric corrosion

6. Valve AOCs
   a. Know how to identify a partially open riser valve

7. Vehicle Barrier Protection
   a. Know how to identify the potential need for vehicle protection
   b. Know how to identify inadequate or damaged vehicle protection

8. Conditions Requiring Immediate Action
   a. Know how to respond to conditions requiring immediate action

H. Subtasks: Not Applicable

I. Span of Control: Not Applicable

TASK: NFGPA 90 - Relighting appliances in connection with gas facilities

A. Task Description

Verify that appliances are in working order. Inspect and perform testing on houseline and associated appliances. Identify unsafe atmospheric conditions. Perform shutdowns and relights on gas affiliated equipment.

B. Application of the Three-part Test for Covered Tasks

This task is not performed on a pipeline facility.
This task cannot affect the operation or integrity of the pipeline.

C. Discussion

D. Subsequent Qualification Interval

Subsequent Qualification Interval	3 Years
Task Frequency Performed	High
Complexity of Task	Medium
Risk or Consequence of Performing Task Incorrectly	High

E. Abnormal Operating Conditions:

1. Refer to Task 70
2. Refer to Task 85

F. Evaluation Method(s)

1. Knowledge Evaluation
2. Skill Evaluation
3. Field Evaluation

G. Domains and Elements

1. Appliance Pilot/Electrical System
   a. Know how to perform safety checks and operate a pilot device.
   b. Know how the process of electronic ignition systems work.
   c. Know how to perform a proper shutdown and relight.
   d. Knowledge of documentation requirements.

2. Houseline piping
   a. Know how to perform a pressure test on houseline.
   b. Know how to identify and repair a leak on a houseline.
   c. Know how to properly purge houseline.
   d. Knowledge of documentation requirements.

3. Residential Regulators
   a. Know how to perform operating and lockup inspection.

4. Abnormal Operating Conditions
   a. Know how to identify and respond to unsafe conditions.
   b. Know how to identify abnormal flame characteristics.
   c. Know how to identify unsafe gas appliances

H. Subtasks:

There are no subtasks for this task

I. Span of Control:

Span of Control for this task is 1 to 1

TASK: NFGPA 101 – Flexsteel Awareness

A. Task Description:

General knowledge and awareness of Flexsteel pipe.

B. Application of the three part test for covered tasks:

This task is not performed on a pipeline facility.
This task is not performed as a requirement under 49 CFR 192
This task cannot affect the operation or integrity of the pipeline.

C. Discussion:

Reviews composition of Flexsteel with an overview of installation including MBR, connections, and fittings available. Includes safety precautions and AOC's specific to Flexsteel.

D. Subsequent Qualification Interval:

Subsequent Qualification Interval	3 Years
Task Frequency Performed	Medium
Complexity of Task	Low
Risk or Consequence of Performing Task Incorrectly	Low

E. Abnormal Operating Conditions:

Refer to Task 70

F. Evaluation Method(s):

Online examination with reasonable accommodation

G. Domain and Elements:

1. Composition
   a. Print line/3 components
   b. 4 steel layers
   c. Annular space

2. Installation
   a. Fittings and swaging process
   b. Minimum bending radius
   c. Future locatibility

3. AOC's
   a. Scratches/gouges
   b. Annular space pressure test/monitoring

H. Subtasks: None

I. Span of Control: N/A.

APPENDIX B

Recognized Veriforce Tasks

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Veriforce Task List for Pipeline, Facility, and Station Construction		Adjusted Span of Control
Task ID #	Task Description	
201	Abnormal Operating Conditions Related to Welding on Pipelines	1:0
202	Monitoring of Welding Process	1:0
213	Joining of Metal Pipe and Components by means other than Welding - Threaded and Flanged Connections	1:1
214	Joining of Metal Pipe and Components by means other than Welding - Threaded Connections (Not Necessary if Employee has Task 213)	1:1
215	Joining of Metal Pipe and Components by means other than Welding - Flanged Connections (Not Necessary if Employee has Task 213)	1:1
216	Joining of Metal Pipe - Compression Couplings	1:1
217	Small Diameter Metal Tubing and Fitting Installation (w/ Swagelok 4 Hour Training Course and Test within the Last 3 Years)	1:1
401	Examination of Buried Pipelines When Exposed	1:1
404	Protection of Coating When Backfilling and From Below Ground Supports	1:2
405	Protection of Coatings from Above Ground Structures	1:2
410	Clear a Shorted Casing	1:2
411	Inspect/Test to Assure Electrical Isolation is Adequate	1:1
412	Install CP Leads on Pipeline Using Exothermic Weld	1:1
426	Inspect Pipe Coating with Holiday Detector	1:1
427	Inspection of Above or Below Ground Coatings	1:1
434	Visual Inspection of Installed Pipe and Components for Mechanical Damage	1:1
435	Measure and Identify Mechanical Damage on Installed Pipe and Components	1:1
482	Apply Approved Coating by Mechanical Spray and Hand Application Methods	1:2
484	Apply Approved Coatings by Wrap Application	1:2
501	Conduct a Pressure Test	1:0
502	Conduct Pressure Test on Pipe that is to be Operated at a Pressure <100 PSIG	1:1
607	Damage Prevention: Observation of Excavating and Backfilling	1:1
608	Damage Prevention for Blasting Near a Pipeline	1:1
611	Hot Tap (Steel)	1:0
703	Placing/Maintaining Line Markers	1:2
704	Permanent Field Repair by Grinding	1:1
705	Permanent Field Repair Using Composite Materials (Clockspring)	1:0
706	Permanent Field Repair Using Composite Materials (Armor Plate)	1:0
707	Permanent Field Repair Bolt-On Clamp/Sleeve	1:2
708	Permanent Field Repair Using Full Encirclement Weld Sleeve	1:2
716	Inspect, Maintain, and Operate Valves	1:2
719	Permanent Field Repair Using Composite Materials	1:0
762	Line Stopping Utilizing a Hot Tap Fitting	1:0
901	Hauling, Stringing, and Handling Pipe	1:1
902	Field Bending of Pipe	1:1
903	Directional Drilling and/or Boring	1:2
904	Inspection of Material	1:1
905	Lowering Pipe into Ditch	1:1

Form Last Updated 2/7/2019

Evaluation Criteria

Covered Task 201 - Abnormal Operating Conditions Related to Welding on Pipelines

49 CFR 192 Reference
192.225
192.227
192.245
192.328(a)(1)
192.713
192.715
192.717
192.751

49 CFR 195 Reference
195.214
195.222
195.224
195.226
195.230

Evaluation Method:
Oral Examination

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:0

NOTE:
This evaluation only covers the Abnormal Operating Conditions (AOCs) related to welding and does not cover the KSAs. The candidate needs to present records demonstrating welding qualification for one of the following:

1. API 1104
2. ASME Section IX

In addition to this task and prior to performing work related to this OQ requirement, the candidate will need to have completed and provide documentation demonstrating welding qualification for the applicable Operator(s).

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; corrosion, cracks, dents, gouges)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location on the pipe or component

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Move to a safe location

*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Examination reveals pipe or component is of different material composition than expected (examples could include, but not limited to; different wall thickness, grade (SMYS), or weld process)

Response/Reaction
*Stop activity
*Notify operator representative

Evaluation Criteria

Covered Task 202 - Monitoring of Welding Process

49 CFR 192 Reference
192.231
192.235
192.241(a)
192.241(c)
192.245
192.328(a)(1)

49 CFR 195 Reference
195.204
195.224
195.228
195.234

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:0

K/S

K 1. Describe the critical attributes of a welding procedure:

* Clamp use requirements
* Base metal (SMYS and group)
* Travel direction
* Travel speed
* Polarity
* Alignment
* Gap
* Cleanliness of surface
* Bevel Angle
* Amperage/Voltage Ranges
* Pre-heat and Post-heat
* Control of the welding environment

K 2. Describe other procedures typically required by welding inspection:

* Operator-specific requirements
* Verification of Level II NDT Certification
* Acceptance criteria for welds per API-1104, Section 9 (latest edition as recognized by PHMSA) or ASME Section IX

S 3. Demonstrate how to check for proper pipe alignment:

a) Verify high/low within requirements
b) Measure gap and bevel

S 4. Demonstrate how to take voltage and amperage measurements

K 5. Describe how to verify/determine each of the following

a) Check welding machine for proper working condition and settings
b) Pre-heat and post-heat
c) Direction of weld

d) Proper amount of root bead prior to removal of clamps
e) Travel speed
f) Methods for cleaning of beads between passes

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:

*Eliminate potential ignition sources

*Move to a safe location

*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; damaged risers, cracks, dents, gouges)

Response/Reaction:

*Stop activity and notify designated operator representative

*Mark the location so it may be easily located

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:

*Move to a safe location

*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Failure or malfunction of pipeline component(s)

(examples could include, but not limited to; valve leaking, pipe support failure)

Response/Reaction:

*Stop activity

*Notify designated operator representative

Examination reveals pipe or component is of different material composition than expected (examples could include, but not limited to; different wall thickness, grade (SMYS), or weld process)

Response/Reaction

*Stop activity

*Notify operator representative

Evaluation Criteria

Covered Task 213 - Joining of Metal Pipe and Components by means other than Welding - Threaded and Flanged Connections

49 CFR 192 Reference
192.271
192.273

49 CFR 195 Reference
195.126

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

S 2. Demonstrate joining metal pipe with threaded connection.

a) Verify fitting to be installed is the proper size, pressure rating, and material.

b) Ensure the fitting is clean and free of obstruction, inspect for nicks or damage in the thread area that could affect sealing properly

c) Apply sealing material to threaded end connections

d) Screw threaded connections together making a tight leak free joint

e) Check for leaks

S 3. Demonstrate joining of metal pipe by flanged connection

a) Verify fitting and gasket to be installed are the proper size, rating and material

b) Ensure flange faces are clean, inspect for nicks or damage on flange faces that may prevent proper sealing

c) Align flanges, insert gasket between flange faces, and insert bolts/studs

d) Snug nuts around flange

e) Tighten flange nuts to specified value using proper sequence of tightening

f) Ensure all nuts are fully engaged

g) Check for leaks

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:

*Eliminate potential ignition sources

*Move to a safe location

*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; misalignment, gasket damage, damaged flange face, stripped threads)

Response/Reaction:

*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Evaluation Criteria

Covered Task 214 - Joining of Metal Pipe and Components by means other than Welding - Threaded Connections

49 CFR 192 Reference
192.271
192.273

49 CFR 195 Reference
N/A

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Appropriate equipment/materials/guidelines

S 2. Demonstrate joining metal pipe with threaded connection.

a) Verify fitting to be installed is the proper size, pressure rating, and material.

b) Ensure the fitting is clean and free of obstruction, inspect for nicks or damage in the thread area that could affect sealing properly

c) Apply sealing material to threaded end connections

d) Screw threaded connections together making a tight leak free joint

e) Check for leaks

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:

*Eliminate potential ignition sources

*Move to a safe location

*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; misalignment, stripped threads,)

Response/Reaction:

*Stop activity and notify designated operator representative

*Mark the location so it may be easily located

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:

*Move to a safe location

*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Evaluation Criteria

Covered Task 215 - Joining of Metal Pipe and Components by means other than Welding- Flanged Connections

49 CFR 192 Reference
192.271
192.273

49 CFR 195 Reference
195.126

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a)Operator-approved procedures b)Appropriate equipment/material

S 2. Demonstrate joining of metal pipe by flanged connection

a) Verify fitting and gasket to be installed are the proper size, rating and material

b) Ensure flange faces are clean, inspect for nicks or damage on flange faces that may prevent proper sealing

c) Align flanges, insert gasket between flange faces, and insert bolts/studs

d) Snug nuts around flange

e) Tighten flange nuts to specified value using proper sequence of tightening

f) Ensure all nuts are fully engaged

g) Check for leaks

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:

*Eliminate potential ignition sources

*Move to a safe location

*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; misalignment, gasket damage, damaged flange face, stripped threads,)

Response/Reaction:

*Stop activity and notify designated operator representative

*Mark the location so it may be easily located

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:

*Move to a safe location

*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Evaluation Criteria

Covered Task 216 - Joining of Metal Pipe - Compression Couplings

49 CFR 192 Reference
192.271
192.273

49 CFR 195 Reference
N/A

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a. Operator-approved procedures

b. Appropriate equipment/material

K 2. Describe the factors to consider when selecting the proper compression coupling.

a) Pipe material,

b) Material transported (liquids, gas)

c) Operating pressure

d) Pipe diameter

K 3. Identify and describe the purpose of the major parts associated with a compression coupling and discuss the appropriateness of mixing parts from different manufacturers

a)Major components of compression couplings

I. Studs (bolts) and nuts

II. Seals or sleeve,

III. Main fitting body or middle ring,

IV. Gasket (insulating or conductive).

b) Not acceptable to mix parts from different manufacturers or models, unless directed by the manufacturer

S 4. Demonstrate the proper application of a compression coupling to metal pipe:

a) Verify that mechanical fittings are suitable for the intended service and type of pipe

b) Clean and dry the ends of the pipe

c) Square the ends of the pipe as needed

d) Install coupling with appropriate gaskets, bolts and nuts, as per manufacturer's specifications

e) Ensure that insulated fittings are installed in the proper orientation(s)

f) Tighten fittings in proper sequence and to proper torque, per manufacturer's specifications

g) Check for leaks.

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction:

*Eliminate potential ignition sources

*Move to a safe location

*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; stripped threads, fitting separation)

Response/Reaction:

*Stop activity and notify designated operator representative

*Mark the location so it may be easily located

Failure or malfunction of pipeline component(s) (examples could include, but not limited to; valve leaking, pipe support failure, fitting separation)

Response/Reaction

*Stop activity

*Notify designated operator representative

Evaluation Criteria

Covered Task 217 - Small Diameter Metal Tubing and Fitting Installation

49 CFR 192 Reference
192.271
192.273

49 CFR 195 Reference
N/A

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task
- a) Operator-approved procedures
- b) Appropriate equipment/material

K 2. Describe general practices around tube routing design and fabrication.
- a) Joints and fittings should be left as accessible as possible,
- b) Tubing should be routed around components that require regular maintenance,
- c) Consideration should be given to movement of components between connections (whether thru expansion and contraction or vibration); candidate should be able to describe the proper application of a "U" bend to allow for component movement.

K 3. Explain the importance of tubing support systems and when they would be used.
- a) When left unsupported, shock and vibration will cause the tubing to shake and fittings to loosen or leak
- b) Vibration could cause a leak in tubing where it comes into contact with other hard surfaces
- c) A support system should be used anytime there is a chance for movement in a tubing run.

S 4. Demonstrate the proper design and fabrication of a tubing component system with at least one 90 degree bend.
- a) Tube routing was designed to account for component movement, accessibility of other components.
- b) Tubing was successfully bent utilizing the proper tool without wrinkling or excessive tube flattening.

S 5. Demonstrate the installation of a tube fitting, per manufacturer's instructions.
- a) Tubing is inserted to the proper depth inside the fitting and rests on the shoulder of the fitting body,
- b) The compression nut is tightened in accordance with tube size and manufacturers specifications.
- c) Thread sealant is used on all NPT fittings, per manufactures specifications.
- d) Check for leaks

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; stripped threads, fitting separation)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Failure or malfunction of pipeline component(s) (examples could include, but not limited to; valve leaking, pipe support failure, fitting separation)

Response/Reaction
*Stop activity
*Notify designated operator representative

Evaluation Criteria

Covered Task 401 - Examination of Buried Pipelines When Exposed

49 CFR 192 Reference
192.328(a)(1)
192.459

49 CFR 195 Reference
195.569

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe when an inspection of coating on buried pipe must be performed.

* Whenever the pipe is exposed for any reason

K 3. Identify and describe the types of defects that might be discovered during a coating inspection.

* Disbonded coating
* Cracks
* Appearance of moisture under coating
* Lack of coating
* Soil stress

K 4. Identify and describe the types of defects that might be discovered during inspection of the exposed pipe.

* Pitting
* Scale
* Rust
* Discoloration
* Corrosion by-product
* Wrinkle
* Buckle
* Gouge
* Dent
* Damaged coupling
* Defective weld patches
* Groove
* Scratch
* Arc burns

S 5. Demonstrate inspection of pipe and coating

K 6. Describe conditions that may warrant extending the inspection beyond the exposed area.

* Anytime the following conditions extend beyond the wall of the excavation:
* Continuation of an individual pitting area
* Coating failure
* Significant general corrosion
* Any mechanical defect or exposed metal surface

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; damaged risers, damaged coating, dents, gouges)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Failure or malfunction of pipeline component(s)

(examples could include, but not limited to; valve leaking, pipe support failure, mechanical fitting failure)

Response/Reaction:
*Stop activity
*Protect the public, property, and the environment
*Notify designated operator representative

Corrosion on pipeline component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; evidence of damaged coating or loss of adhesion, notable metal loss, evidence of excess soil stress)

Response/Reaction:

*Notify designated operator representative

Evaluation Criteria

Covered Task 404 - Protection of Coating When Backfilling and From Below Ground Supports

49 CFR 192 Reference
192.319(b)
192.461(c)
192.461(d)
192.614(c)(6)

49 CFR 195 Reference
195.252
195.422

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:2

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures
b) Appropriate equipment/material

K 2. Describe ditch and soil conditions that may adversely affect pipe coating.

a. Rock
b. Moisture
c. Foreign Material

K 3. Describe the most common methods of protecting pipe coating where pipe and supports come into contact.

a. Sandbags
b. Rock shield
c. Felt wrap
d. Grout or abrasion resistant coatings

K 4. Describe how to prevent damage to coating during backfill operations

a) Use rock shield as needed
b) Ensure pad dirt is free of rocks and other foreign material and compacted as appropriate
c) Ensure suitable pad dirt surrounds pipeline, as per Operator's policies & procedures
d) Ensure backfill material is free of large rocks and other foreign material
e) Do not fill directly on pipeline

S 5. Demonstrate how to prevent damage to coating during backfill operations

a) Ensure pad dirt/sand is free of rocks and other foreign material and compacted as appropriate
b) Ensure suitable pad dirt/sand surrounds pipeline
c) Apply rock shield

S 6. Demonstrate how to protect pipe coating where pipe and supports come into contact.

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; damaged risers, damaged CP components, dents, gouges).

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Failure or malfunction of pipeline component(s)

(examples could include, but not limited to; valve leaking, pipe support failure)

Response/Reaction:

*Stop activity
*Notify designated operator representative

Unintended movement or unusual loading of a pipeline that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; earthquake, washout / erosion, soil subsidence, improper pipe placement, pockets of air/no soil support under pipeline)

Response/Reaction:
*Stop activity
*Notify designated operator representative

Evaluation Criteria

Covered Task 405 - Protection of Coatings From Above Ground Structures

49 CFR 192 Reference
192.461(d)

49 CFR 195 Reference
N/A

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:2

K/S

K 1. Explain what is required prior to performing task
- a) Operator-approved procedures
- b) Appropriate equipment/material

K 2. Describe the most common methods of protecting pipe coating where pipe and permanent supports come into contact.
- a) Composite materials (e.g.: Micarta)
- b) Neoprene
- c) PVC
- d) Epoxy chocks

K 3. Describe the most common methods of protecting pipe coating where pipe and temporary supports come into contact.
- a) Wood
- b) Carpet
- c) Rubber
- d) Rope

S 4. Using one of the most common methods, demonstrate the installation of pipe supports for: (Evaluator Note: “common methods” defined in K2 and K3)
- a) Permanent
- b) Temporary

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; damaged risers, exposed pipeline, dents)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Failure or malfunction of pipeline component(s) (examples could include, but not limited to; valve leaking, pipe support failure)

Response/Reaction:
*Stop activity
*Notify designated operator representative

Unintended movement or unusual loading of a pipeline and/or pipeline support that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; earthquake, washout / erosion, soil subsidence, improper pipe placement)

Response/Reaction:
*Stop activity
*Notify designated operator representative

Corrosion on pipeline component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; evidence of damaged coating or loss of adhesion, notable metal loss)

Response/Reaction:
*Notify designated operator representative

Evaluation Criteria

Covered Task 410 - Clear Shorted Casing

49 CFR 192 Reference
192.467(c)

49 CFR 195 Reference
195.401(b)(1)
195.575(a)

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:2

K/S

K 1. Explain what is required prior to performing task.

a) Operator-approved procedures

b) Appropriate equipment/material

S 2. Demonstrate steps for clearing a shorted casing using insulators

a) Expose and inspect casing end seals

b) Install casing insulators, if possible

c) Install new casing end seals

d) Check for proper isolation

S 3. Demonstrate steps for filling a shorted casing

a) Expose and inspect casing end seals

b) Install new casing end seals

c) Modify vent pipes to accept fill material

d) Inject fill material

e) Check for proper isolation

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing or detectable gas at casing vent, bubbles, dead vegetation)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to: damaged casing vent, casing pipe having fallen onto carrier pipe and damaged coating which may result in corrosion)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Evaluation Criteria

Covered Task 411 - Inspect/Test to Assure Electrical Isolation is Adequate

49 CFR 192 Reference
192.467(d)
192.620(d)(6)

49 CFR 195 Reference
195.575

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe types of insulators and where each is typically located.

a. Flange insulator - custody transfer points or other operator-designated locations

b. Union insulator - threaded connections

c. In-line insulator - custody transfer points or other operator-designated locations

S 3. Demonstrate how to inspect insulators for possible short:

a. Inspect insulator for evidence of electrical arcing or foreign material that could cause a short.

b. Determine that test equipment is working properly.

c. Demonstrate how to take a reading across an insulator to determine whether a short exists.

K 4. Describe common methods of subsequent testing if readings indicate a possible short.

a. Induce temporary current on one side

b. Depolarize one side

c. Temporary anode(s)

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to: corrosion, damaged insulators or other insulating devices, damaged test stations, shorted flange, joint or union)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Evaluation Criteria

Covered Task 412 - Install CP Leads on Pipeline Using Exothermic Weld

49 CFR 192 Reference
192.471

49 CFR 195 Reference
195.567

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)

None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe how to verify pipeline wall thickness and location.

a. Consult with operator to verify product, line number, station number, location, and wall thickness

S 3. Demonstrate how to prepare pipe surface:

a. Remove coating, file and clean down to bare metal

b. Remove any film on pipeline with approved solvent

K 4. Describe how to select location of exothermic weld, exothermic weld size and appropriate furnace/mold

a. Ensure exothermic weld is a reasonable distance from any existing weld.

b. Appropriate charge size determined by wall thickness

c. Appropriate furnace/mold determined by pipe diameter and wire gauge

S 5. Demonstrate installation of CP leads using exothermic procedure and test integrity of weld/adhesion:

a. Select/prepare lead wire/cable (based on exothermic weld size)

b. Install lead with exothermic procedure

c. Test integrity of weld/adhesion

K 6. Describe final steps associated with CP lead installation:

a. Clean area and apply approved coating

b. Ensure CP leads are not damaged during backfill

c. Install test station

d. Take pipe to soil reading

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:

*Eliminate potential ignition sources

*Move to a safe location

*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline. (Examples could include, but not limited to; corrosion/pitting, dent, gouge)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative Failure or malfunction of pipeline component(s)

(Examples could include, but not limited to; test lead is moved / breaks loose during backfill)

Response/Reaction:

*Stop activity
*Notify designated operator representative

Evaluation Criteria

Covered Task 426 - Inspect Pipe Coating with Holiday Detector

49 CFR 192 Reference
192.455(a)
192.457(a)
192.461
192.479

49 CFR 195 Reference
195.561
195.569

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe the use and calibration of equipment required for holiday detection,

K 3. Describe the voltage limitations of the equipment being used.

S 4. Demonstrate the use of a holiday detector as follows:

* Ensured the pipeline is properly grounded.

* Placed the Holiday Detector on the pipeline to be inspected ensuring the detector ground cable is properly connected to the detector and the other end lying on the ground (not hooked to the ground rod).

* Attached HVDC probe positive (+) side to the detector coil and the negative (-) side to the pipeline.

* Set the voltage to the correct setting as per company specification.

* Turned on the Holiday Detector

* Inspected coating,

* Marked holidays for repair.

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; pinhole leak or blowing gas near holiday, puddles)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to: coating damage, dents, and gouges).

Response/Reaction:

*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Corrosion on pipeline component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to: notable metal loss detected at holiday)

Response/Reaction:
*Notify designated operator representative

Evaluation Criteria

Covered Task 427 - Inspection of Above or Below Ground Coatings

49 CFR 192 Reference
192.461(a)

49 CFR 195 Reference
N/A

Evaluation Method:
Oral Examination

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)

None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures/specifications

b) Manufacturer procedures

c)Appropriate equipment/material

K 2. Describe factors that must be considered prior to application of coatings

a) Temperature range of the pipe

b) Soil type/conditions

c) Weather conditions (temperature, humidity)

d) Compatibility with existing coatings

e) Surface preparation

K 3. Describe what environmental conditions may affect coating application.

a) Dew point reading

b) Moisture on pipe surfaces

c) Ambient and surface temperature

d) Wind

e) Dust

f) Airborne particles

K 4. Describe how to determine the surface temperature of the area to be coated

a) Take temperature readings on all sides of area to be coated

b) Using all temperatures taken, determine worst case surface temperature(s) measured to determine blasting/painting requirements

K 5. Explain the minimum temperature to dew point limits required for surface preparation/application of coatings

a) Surface preparation or the application of a coating shall not be allowed when there is 5 degrees or less between the surface temperature and the dew point

K 6. Describe the common terms used in paint manufacturer's product data sheets

a) Finish - description of coating appearance when cured (example - Gloss, Semi-Gloss, Flat etc.)

b) Volatile Organic Compounds (VOC) - liquids that have high enough vapor pressure under normal conditions to significantly vaporize and enter the atmosphere.

c) Solids Content - volume of solids typically reported as a percent of a packaged coating. Coating contents minus VOC's.

d) Flash Point - the lowest temperature at which a volatile liquid can vaporize to form an ignitable mixture in air

e) Surface Preparation - the removal of foreign matter (i.e., paint, scale etc.) from a metal by many of several means.

f) Substrate - Surface(s) to be painted

K 7. Describe the two types of holiday detectors and their typical use.

a) Low-Voltage Holiday Detectors - are typically used on coatings that are thinner than 500 microns (20 mils). They are powered by a self-contained battery with a voltage that ranges from 5 to 90 volts direct current, depending on the manufacturer.

b) High- Voltage Holiday Detectors - typically used when a coating is thicker than 500 microns (20 mils). They are powered by a power supply that can provide thousands or tens of thousands of volts, depending on the manufacturer.

K 8. Describe the types of equipment used for coating application and or inspection.

a) Surface temperature thermometers - Two or more thermometers may be needed for full sun/shaded surfaces.

b) Sling psychrometers - Determine relative humidity and dew point from wet and dry bulb readings.

c) Wet film thickness gauge - Used to determine the thickness of paint while wet. Paint thickness is determined by pressing the gage against wet coating then identifying last (greatest) calibrated tab that has wet coating.

d) Dry film thickness gauge - Used to determine thickness of paint when dry.

S 9. Demonstrate how to properly test the temperature of the pipe

S 10. Demonstrate how to check the thickness of the coating using each of the following methods

a) Wet film

b) Dry film

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:

*Eliminate potential ignition sources

*Move to a safe location

*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; damaged risers, exposed pipeline, dents, gouges)

Response/Reaction:

*Stop activity and notify designated operator representative

*Mark the location so it may be easily located

Unintended fire and/or explosion on or near the pipeline (examples could include, but not limited to; scorched ground, loud noise)

Response/Reaction:

*Leave immediate area

*Protect the public, property and environment

*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Failure or malfunction of pipeline component(s)

(examples could include, but not limited to; valve leaking, pipe support failure)

Response/Reaction:

*Stop activity

*Notify designated operator representative

Corrosion on pipeline component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; evidence of damaged coating or loss of adhesion, notable metal loss, evidence of excess soil stress)

Response:

*Notify designated operator representative

Evaluation Criteria

Covered Task 434 - Visual Inspection of Installed Pipe and Components for Mechanical Damage

49 CFR 192 Reference
192.307
192.309

49 CFR 195 Reference
195.401

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator approved procedures

K 2. Describe when an inspection of pipe and components for mechanical damage must be performed

a. Prior to installation (includes damage due to improper handling)

b. During installation; prior to backfill

c. Whenever buried pipe is exposed for any reason

K 3. Explain what locations should be inspected for mechanical damage

a. Pipe, pipe supports and other pipeline components

b. At ground level on risers

c. Spans over water

d. Under damaged or missing thermal insulation

e. Entry/exit locations for waterways

f. Other areas necessary to determine extent of damage

S 4. Identify and describe each of the following defects

a. Missing, damaged or disbonded coating

b. Cuts, dents, gouges and cracks

c) Wrinkle bends and buckling

K 5. Explain when it is necessary to inspect internal surfaces of pipe and components for physical damage

a) Whenever internal surfaces are exposed such as, but not limited to, flange connected piping or components.

Abnormal Operating Conditions

1. Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

2. Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline. (examples could include, but not limited to; damaged risers, damaged coating)

   Response/Reaction:
   *Stop activity and notify designated operator representative
   *Mark the location so it may be easily located

3. Failure or malfunction of pipeline component(s)
   (examples could include, but not limited to; valve leaking, pipe support failure, mechanical fitting failure)

   Response/Reaction:
   *Stop activity
   *Protect the public, property, and the environment
   *Notify designated operator representative

4. Corrosion on pipeline component that has impaired or is likely to impair the serviceability of the pipeline. (examples could include, but not limited to; evidence of damaged coating or loss of adhesion, notable metal loss, evidence of excess soil stress)

   Response:
   *Notify designated operator representative

Evaluation Criteria

Covered Task 435 - Measure and Identify Mechanical Damage on Installed Pipe and Components

49 CFR 192 Reference
192.711
192.713
192.933

49 CFR 195 Reference
195.422

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task
- a) Operator-approved procedures
- b) Appropriate tools and material such as:
  - i) Pit gauge
  - ii) UT meter
  - iii) Dent gauge (profiler) iv)Blast Medium

K 2. Describe the typical measurements that may be collected
- a) Depth
- b) Length
- c) Width
- d) Deformation
- e) Wall thickness
- f) Location in relation to weld (girth/longitudinal), seam, bend, and clock position

K 3. Describe how to identify the following types of mechanical damage
- a) Dent with metal loss (e.g.; corrosion, scratches, gouges, grooves,)
- b) Dent without metal loss
- c) Metal loss without dent (e.g.; corrosion, scratches, gouges, grooves)
- d) Other deformation (e.g.; wrinkle, buckle, ripple, dimple, ovality, expanded pipe)

S 4. Demonstrate how to measure mechanical damage
- a) Clean area to bare metal without causing further damage
- b) Measure depth, length and width of defect and associated area
- c) Note orientation and location
- d) Inspect for deformation associated with the mechanical damage
- e) Determine if the mechanical damage involves a girth weld or longitudinal seam

Abnormal Operating Conditions

1. Unintentional release, vapors, or hazardous atmosphere. (examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

2. Unintended fire and/or explosion on or near the pipeline
   Response/Reaction:
   *Move to a safe location
   *Notify emergency response personnel, as appropriate
   *Notify designated operator representative
3. Examination reveals pipe or component is of different material composition than expected (examples could include, but not limited to; different wall thickness, grade (SMYS), or weld process)
   Response/Reaction
   *Stop activity
   *Notify operator representative

Evaluation Criteria

Covered Task 482 - Apply Approved Coatings by Mechanical Spray and Hand Application Methods

49 CFR 192 Reference
192.461(a)

49 CFR 195 Reference
195.557
195.559
195.581

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:2

K/S

K 1. Explain what is required prior to performing task
- a) Operator-approved procedures
- b) Manufacturer procedures
  - i) Compatibility with existing coating
  - ii) Proper surface preparation
- c) Appropriate equipment/material

K 2. Describe factors to consider when applying coatings
- a) Application method (example: mechanical spray, hand applied; brush, rolled, spray can)
- b) Dew point reading at time of application
- c) Pipe sweating
- d) Ambient and surface temperature
- e) Surface contaminates
- f) Airborne contaminates
- g) Weather conditions (current and forecasted)
- h) Blasting media

K 3. Describe how to assure the surface is properly prepared for coating application
- a) Verify surface is prepared per manufacturer's procedure, including surface profile, as applicable
- b) Verify surface is free of contaminates

K 4. Describe the terms typically used in general manufacturer's recommendations pertaining to the application of coatings.
- a) Surface profile
- b) Pot life
- c) Mixing ratios
- d) Curing/ drying times
- e) Re-coating
- f) Shelf life

K 5. Describe the following coating application methods and use of the related equipment.
- a) Brush

b) Roller
c) Aerosol spray (handheld spray can)
d) Mechanical spray (mechanized system)

S 6. Demonstrate how to properly prepare for coating application

a) Measure surface temperature of component
b) Measure surface profile, as applicable
c) Determine dew point
d) Ensure area to be coated is free of contaminates
e) Prepare coating (example, but not limited to: mixing epoxy), as applicable

S 7. Demonstrate the proper application of coating using each of the following methods/coating systems:

*Mechanical spray system
*Hand
- Rolled
- Brushed
- Aerosol

a) Apply primer, intermediate coat (if required), and topcoat according to manufacturer's specifications.
b) Measure thickness of applied coating paint to confirm proper application thickness using both wet film and dry film methods

K 8. Explain how to protect coating during curing/drying

a) Tarps
b) Lean-to's
c) Canopies

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to: damaged risers, exposed pipeline, dents, and gouges)

Response/Reaction

*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Unintended fire and/or explosion on or near the pipeline

Response/Reaction
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Failure or malfunction of pipeline component(s) (Examples could include, but not limited to; valve leaking, pipe support failure)

Response/Reaction
*Stop activity
*Notify designated operator representative

Corrosion on pipeline component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; evidence of damaged coating or loss of adhesion, notable metal loss, evidence of excess soil stress)

Response/Reaction
*Notify designated operator representative

Evaluation Criteria

Covered Task 484 - Apply Approved Coatings by Wrap Application

49 CFR 192 Reference
192.461(a)

49 CFR 195 Reference
195.557
195.559
195.581

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:2

K/S

K 1. Explain what is required prior to performing task
- a) Operator-approved procedures
- b) Manufacturer procedures
  - i) Compatibility with existing coating
  - ii) Proper surface preparation
- c) Appropriate equipment/material

K 2. Describe factors to consider when applying wrapped coatings
- a) Dew point reading at time of application
- b) Pipe sweating
- c) Ambient and surface temperature
- d) Surface contaminates
- e) Airborne contaminates
- f) Weather conditions (current and forecasted)

K 3. Describe how to assure the surface is properly prepared for coating application
- a) Verify surface is prepared per manufacturer's procedure
- b) Verify surface is free of contaminates

K 4. Describe the terms typically used in general manufacturer's recommendations pertaining to the application of coatings
- a) Curing / drying times
- b) Shelf life
- c) Coating thickness
- d) Overlap
- e) Surface profile

K 5. Describe coating wrap application methods
- a) Hand applied
- b) Machine applied
- c) Cigarette wrap
- d) Spiral wrap
- e) At transition zones, wrap in direction to prevent environmental intrusion

S 6. Demonstrate how to properly prepare for coating application

a) Measure surface temperature of component.
b) Determine dew point
c) Measure surface profile, as applicable
d) Ensure area to be coated is free of contaminates

S 7. Demonstrate the proper application of the wrap coating method

a) Prepare coating wrap if required by manufacturer specifications (i.e., primer, activator)
b) Apply coating wrap
    i) Overlap in accordance with manufacturer's specifications

K 8. Explain how to protect coating during curing/drying

a) Tarps
b) Lean-to's
c) Canopies

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to: damaged risers, exposed pipeline, dents, and gouges)

Response/Reaction
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Unintended fire and/or explosion on or near the pipeline

Response/Reaction
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Failure or malfunction of pipeline component(s) (Examples could include, but not limited to; valve leaking, pipe support failure)

Response/Reaction
*Stop activity
*Notify designated operator representative

Corrosion on pipeline component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; evidence of damaged coating or loss of adhesion, notable metal loss, evidence of excess soil stress)

Response/Reaction
*Notify designated operator representative

Evaluation Criteria

Covered Task 501 - Conduct a Pressure Test

49 CFR 192 Reference
192.328(d)
192.505
192.507
192.513

49 CFR 195 Reference
195.304
195.305
195.306

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:0

K/S

K 1. Explain what is required prior to performing task
- a) Operator-approved procedures
- b) Appropriate equipment/material

K 2. Identify common test mediums.
- a. Water
- b. Air or Inert gas
- c. Natural Gas

K 3. Describe considerations when water is used as a test medium
- a. Pre- or post-test sampling
- b. Filtering
- c. Prevention of Freezing

K&S 4. Describe and simulate required preparation for conducting a pressure test:
- a. Obtain plan which will provide details of pressure test parameters, target test pressures, pressure ranges +/-, location of manifolds, test medium, duration, holds if any, MAOP / MOP of facilities and confirmation of material design specifications
- b. Confirm all required calibration reports for test equipment is available and current.
- c. Verify test equipment certification is current and re-certify if required.
- d. Confirm that strength of existing and temporary piping and components will withstand test pressure specified in testing plan.
- e. Confirm all valves are in manufacturer's recommended position or per Operator's specifications and have been blown down or drained as required
- f. Confirm that all fittings, flanges, unions and threaded joints have been checked to insure they are tight and properly sealed.
- g. Place all testing equipment as far as practical from facility to be tested, locate opposite side of any seams, keep in mind elevation constraints
- h. Setup and check all equipment for proper operation, confirm understanding of proper operation of all appropriate equipment including, Deadweights, electronic pressure monitor/recorders, mechanical pressure, temperature recorders, hoses, fittings, high and low-pressure pumps, stroke counters, etc.

i. Ensure the recording gauge is level and plumb.

j. If a recording pressure gauge is not available, an adequate spring gauge or deadweight gauge may be used with pressure readings taken at operator prescribed intervals throughout the duration of the test and properly documented the pressures in the appropriate format. . The test pressure gauge shall be verified at the test pressure with a deadweight check before and after the test.

k. Obtain and record the ambient temperature.

l. Confirm appropriate surveillance activities are conducted in order to minimize number of persons near the tests

m. Fill test segment with test medium

K&S 5. Describe and simulate activities required to conduct test:

a. If recording chart is used, place the static pressure recording chart and pen at the correct time when the test officially begins.

b. After pressure stabilizes, begin test and ensure pressures remain within desired range for prescribed duration of test.

c. Monitor potential effects of sun and temperature on pressures.

d. Adjust test pressures to account for elevation at the gauge site in the test segment.

e. Monitor pressure variations and document causes and mitigation.

f. Record required pressure, temperature and pump stroke readings at intervals specified in the test plan.

K&S 6. Describe and simulate steps involved in depressurizing:

a. Confirm acceptance of test by authorized Operator's representative

b. Relieve pressure according to Operator specifications.

c. Remove test medium in accordance with Operator approved method to ensure minimal impact to the environment and according to any required permits.

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to: blowing gas if natural or inert gas is medium; leaking component)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Leave immediate area
*Protect the public, property and environment
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Failure or malfunction of pipe and/or pipeline component(s) (Examples could include, but not limited to; material defects, valve, manifold, fittings, gasket failures)

Response/Reaction:
*Stop activity
*Protect the public, property, and the environment
*Notify designated operator representative

Evaluation Criteria

Covered Task 502 - Conduct Pressure Test on Pipe that is to be Operated at a Pressure <100 psig

49 CFR 192 Reference
192.509
192.511
192.513(b)

49 CFR 195 Reference
N/A

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K&S 2. Describe and simulate the steps necessary to conduct a leak test where pressure is less than 100 p.s.i.

a. Isolate the segment to be tested in accordance with Operator requirements.

b. Install/maintain calibrated test instruments/components in order to collect required test data

c. Setup appropriate equipment to introduce pressure and test medium into the segment to be tested.

d. Introduce test medium

e. Perform leak test in accordance with Operator procedures:

f. Ensure no leakage discovered

g. Remove isolation

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, leaking valve, hissing sound)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Unintended fire and/or explosion on or near the pipeline (Examples could include, but not limited to; loud noise, shimmering air, extreme heat)

Response/Reaction:
*Leave immediate area
*Protect the public, property and environment
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Failure or malfunction of pipeline component(s)

(Examples could include, but not limited to; material defects, valve, manifold, fittings, gasket failures)

Response/Reaction:

*Stop activity

*Protect the public, property, and the environment

*Notify designated operator representative

Evaluation Criteria

Covered Task 607 - Damage Prevention: Observation of Excavating and Backfilling

49 CFR 192 Reference
192.319(b)
192.328(a)(1)
192.614(c)(6)

49 CFR 195 Reference
195.252
195.442(c)(6)

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task
- a. Operator-approved procedures
- b. Appropriate equipment/material

K 2. Describe steps that must take place prior to excavation (including trenchless activities such as boring and directional drilling) activities:
- a. Verification of One-Call
- b. Provide excavator with guidelines for construction near pipelines
- c. Identification of pipeline markers
- d. Identification of foreign structures and utilities
- e. Pot hole when appropriate to ensure adequate clearance
- f. Provide for standby personnel as needed

K 3. Identify considerations during excavation of pipelines:
- a. Ensure bucket teeth are barred and side cutters removed as applicable
- b. Maintain clearance between bucket and pipeline according to operator guidelines
- c. Hand excavate as required
- d. Anticipate encountering unidentified foreign structures and pipeline appurtenances (i.e.., taps, valves, etc.)
- e. Provide or ensure adequate pipeline support

S 4. Verify location and elevation of affected below ground structures

K 5. Describe how to establish effective communication prior to performing task
- a. Coordinate communication requirements, verbal and non-verbal between equipment operator and spotter

K 6. Describe how to prevent damage during backfill operations:
- a. Use rock shield as needed
- b. Ensure pad dirt is free of rocks and other foreign material and compacted as appropriate
- c. Ensure suitable pad dirt surrounds pipeline, as per Operator's policies & procedures
- d. Ensure backfill material is free of large rocks and other foreign material
- e. Do not fill directly on pipeline

Abnormal Operating Conditions

Improperly marked and/or unmarked foreign structures and utilities.

Response/Reaction:

*Stop activity

*Mark the location so it may be easily located

*Notify designated operator representative

Unintentional release, vapors, or hazardous atmosphere. (Examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction:

*Eliminate potential ignition sources

*Move to a safe location

*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Damage to pipe, coating or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; damaged risers, dents, gouges)

Response/Reaction:

*Stop activity and notify designated operator representative

*Mark the location so it may be easily located

Failure or malfunction of pipeline component(s) (examples could include, but not limited to; valve leaking, pipe support failure)

Response/Reaction:

*Stop activity

*Notify designated operator representative

Unintended movement or unusual loading of a pipeline that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; earthquake, washout / erosion, soil subsidence, improper pipe placement, pockets of air/no soil support under pipeline)

Response/Reaction:

*Stop activity

*Notify designated operator representative

Evaluation Criteria

Covered Task 608 - Damage Prevention for Blasting Near a Pipeline

49 CFR 192 Reference
192.614(c)(6)

49 CFR 195 Reference
195.442(c)(6)

Evaluation Method:
Oral Examination

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe the steps necessary to prevent pipeline damage caused by nearby blasting activities:

a) Obtain the blasting plan

b) Ensure that all information is included in the blasting plan and that it has been properly reviewed by Operator representatives

c) Monitor blasting operations to ensure that the blasting plan is followed

d) Monitor pipeline pressure and perform a leakage survey, as appropriate.

K 3. Describe means of identifying leaks

a) Leak detection device

b) Smell

c) Visual

d) Sound

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation, dust clouds, vapors from casing vents)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Leave immediate area
*Protect the public, property and environment
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Unintended movement or abnormal loading of a pipeline as a result of blasting activities that has impaired or is likely to impair the serviceability of the pipeline (examples and/or indicators could include, but not limited to; component damage, seismic vibration, down-slope movements, landslides, cave-ins, washout / erosion, soil subsidence in mined areas).

Response/Reaction:
*Stop activity
*Mark the location so it may be easily located, as appropriate
*Notify designated operator representative

Improperly marked and/or unmarked pipeline

Response/Reaction:
*Stop activity
*Notify designated operator representative
*Mark the location so it may be easily located

Evaluation Criteria

Covered Task 611 - Hot Tap (Steel Pipe)

49 CFR 192 Reference
192.627
192.751

49 CFR 195 Reference
195.422

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:0

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe the information which must be known prior to beginning a hot tapping operation:

a. Diameter and wall thickness of pipe

b. Pressure

c. Size of tap

d. Size and type of fitting

S 3. Simulate performance of a hot tap:

a. Set tapping machine up, verifying proper cutter and adapter.

b. Attach machine to valve

c. Run cutter in by hand until pilot bit touches pipe, and verify prior measurements.

d. Retract cutter to verify the tap valve will close.

e. Calculate boring distances and mark travel to bore on appropriate equipment.

f. Start the bore with bleed valve open.

g. Bore until bleed through occurs.

h. Shut in bleed valve. Let pressure equalize, and check all equipment for leaks.

i. Stop bore until any leaks are eliminated.

j. Bore to pre-marked depth, stop machine, and verify that entire cut has been made.

k. Slowly back out the cutter/perforator

l. Shut tap valve and bleed pressure off machine.

m. Examine cutter to verify presence of coupon, if shell cutter used.

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation, burn through or other penetration occurring during welding, leak between tapping machine and tap valve flange)

Response/Reaction:

*Eliminate potential ignition sources

*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Unintended fire and/or explosion on or near the tap or on the pipeline

Response/Reaction:

*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; dent, gouge, damage during installation or withdrawal of cutter, coating damaged on adjacent pipe during tapping operation)

Response/Reaction:

*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Failure or malfunction of tapping equipment that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; cutter teeth break or cutter gets in bind, indication(s) of potential misalignment, unable to remove cutter and/or coupon)

Response/Reaction:

*Stop activity
*Notify designated operator representative

Evaluation Criteria

Covered Task 703 - Placing/Maintaining Line Markers

49 CFR 192 Reference
192.707

49 CFR 195 Reference
195.410(a)
195.410(c)

Evaluation Method:
Oral Examination

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:2

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Identify appropriate locations for line markers:

a. Stream crossings

b. Public road crossings

c. Railroad crossings

d. Above ground pipelines accessible to the public

e. Compressor and meter stations

f. Other locations designated by the operator (e.g.., fence lines)

S 3. Demonstrate the steps required to safely install a line marker:

a) Verify location of pipeline

b) Verify depth of pipeline

c) Install marker in order to maintain a safe distance from the pipeline

K 3. Describe steps required to safely install a line marker:

a. Verify location of pipeline

b. Verify depth of pipeline

c. Install marker in order to maintain a safe distance from the pipeline.

K 4. Identify the information that must be correct and legible on the markers:

a. Emergency 24-hour Phone Number

b. Operator Identification

c. 'Warning' or 'Danger'

d. Name of gas transported

K 5. Describe what to look for when inspecting pipeline markers:

a. Verify proper location of pipeline marker

b. Verify accuracy of information on pipeline marker

c. Verify that pipeline marker is visible

d. Verify that pipeline marker is legible

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation, vapors from casing vents)

Response/Reaction:

*Eliminate potential ignition sources

*Protect the public, property and environment

*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Evidence of ROW encroachment (examples could include, but not limited to; fences, structures, trees, unauthorized vehicles/equipment, unauthorized construction activities)

Response/Reaction

*Notify appropriate operator representative

Inadequate cover and/or exposed pipe (examples could include, but not limited to; washes, erosion, rutting)

Response/Reaction

*Notify appropriate operator representative

Evaluation Criteria

Covered Task 704 - Permanent Field Repair by Grinding

49 CFR 192 Reference
192.713

49 CFR 195 Reference
195.226
195.230

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe the steps for making permanent repairs of imperfections or damage by grinding:

a. Verify wall thickness in defect area and establish minimum allowable wall thickness.

b. Verify that pressure is at safe level.

c. Grind the defect in a circumferential direction and monitor wall thickness during grinding process.

d. Contour the area around the defect to provide a smooth transition to the unaffected pipe surface.

e. Verify remaining wall thickness is within allowable limits.

f. Qualified person inspects area for cracking with wet mag particle or other operator-approved method.

S 3. Demonstrate the proper grinding procedure by removing a gouge from a piece of scrap pipe.

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; previously unidentified subsurface defects such as; laminations, inclusions, cracking)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Unintended movement of a pipeline that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; earthquake, soil instability, equipment vibration, inadequate pipe support)

Response/Reaction:
*Stop activity
*Notify designated operator representative

Evaluation Criteria

Covered Task 705 - Permanent Field Repair Using Composite Materials (Clockspring)

49 CFR 192 Reference
192.713

49 CFR 195 Reference
195.422(a)
195.585(a)(2)

Evaluation Method:
Certificate and Oral Examination

Subsequent Qualification Interval
1 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)

Manufacturer Certification

Span of Control
1:0

NOTE:
Obtain and maintain certification from manufacturer.

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; unforeseen wall loss)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Unintended movement of a pipeline that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; earthquake, soil instability, equipment vibration, inadequate pipe support)

Response/Reaction:
*Stop activity
*Notify designated operator representative

Evaluation Criteria

Covered Task 706 - Permanent Field Repair Using Composite Materials (Armor Plate)

49 CFR 192 Reference
192.713

49 CFR 195 Reference
195.422(a)
195.585(a)(2)

Evaluation Method:
Certificate and Oral Examination

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
Manufacturer Certification

Span of Control
1:0

NOTE:
Obtain and maintain certification from manufacturer.

K/S
K 1. Explain what is required prior to performing task
a) Operator-approved procedures
b) Appropriate equipment/material

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; unforeseen wall loss)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Unintended movement of a pipeline that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; earthquake, soil instability, equipment vibration, inadequate pipe support)

Response/Reaction:
*Stop activity
*Notify designated operator representative

Evaluation Criteria

Covered Task 707 - Permanent Field Repair Using Bolt-On Clamp/Sleeve

49 CFR 192 Reference
192.717

49 CFR 195 Reference
195.422(a)
195.585(a)(2)

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)

None

Span of Control
1:2

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe the steps for making field repairs using bolt-on clamp or bolt-on sleeve:

a) Verify that pressure is at safe level

b) Clean pipe surface to acceptable application parameters

c) Correctly position the clamp/sleeve around the pipe, over the leak, and tighten clamp/sleeve

d) Verify/re-torque stud bolts and nuts

e) Verify seal, as applicable

f) Support pipe as required by operator

S 3. Demonstrate installation of bolt-on clamp or bolt-on sleeve.

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; unforeseen wall loss, damaged seal(s), burn through of other penetration occurring during welding).

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Move to a safe location
*Notify emergency response personnel, as appropriate

*Notify designated operator representative

Unintended movement of the pipeline that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; earthquake, soil instability, equipment vibration, inadequate pipe support)

Response/Reaction:

*Stop activity

*Notify designated operator representative

Evaluation Criteria

Covered Task 708 - Permanent Field Repair Using Full Encirclement Weld Sleeve

49 CFR 192 Reference
192.717

49 CFR 195 Reference
195.422(a)
195.585(a)(2)

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:2

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe the steps for making field repairs using full encirclement weld sleeve:

a. Verify that pressure and flow rate are at acceptable levels

b. Clean pipe surface to bare metal.

c. Perform ultrasonic test

d. Install filler material, if applicable, according to operator requirements.

e. Prepare and fit top and bottom halves to the pipe

f. Ensure that a qualified welder welds side seams and ends in accordance with operator welding procedures

g. Ensure that welds are inspected or tested according to operator procedures.

S 3. Demonstrate how to properly align top and bottom halves to the pipe.

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; unforeseen wall loss)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Unintended movement of a pipeline that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; earthquake, soil instability, equipment vibration, inadequate pipe support)

Response/Reaction:
*Stop activity
*Notify designated operator representative

Evaluation Criteria

Covered Task 716 - Inspect, Maintain, and Operate Valves

49 CFR 192 Reference
192.605 (b)(5)
192.745
192.747

49 CFR 195 Reference
195.402 (c)(7)
195.420(a)
195.420(b)

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:2

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Identify the most common types of pipeline valves.

* Ball valve
* Plug valve
* Gate valve

S 3. Demonstrate how to inspect a valve and associated components:

a. Verify valve is properly identified

b. Perform a physical inspection of valve body, flanges, bolts, operator, locking devices, lube fittings, chains, lock, etc. for leaks, corrosion, and damage

c. Operate valve (partially operate when full operation is not possible) to ensure valve operates properly. Include in operation both manual valve and valve with operator.

S 4. Demonstrate how to perform valve maintenance

a. Understand and follow manufacturer's specifications

b. Lubricate the valve according to valve type and manufacturer guidelines.

c. Identify pressure rating of valve and monitor grease pressure to ensure valve pressure rating is not exceeded during lubrication.

d. Clean stem threads, according to valve type.

e. Energize and/or replace stem packing to seal valve stem leaks or for predictive maintenance.

f. Bleed valve body, according to valve type.

g. Winterize valves subject to freezing.

h. Provide corrosion inhibitor (if applicable)

i. Operate valve (partially operate when full operation is not possible) to ensure valve operates properly. Include in operation both manual valve and valve with operator.

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction:

*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Failure, malfunction, or damage of pipeline component(s) that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; operating mechanism refusing to move, no indication of movement, outside forces damage)

Response/Reaction:
*Stop activity
*Notify designated operator representative

Corrosion on pipeline component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; stem corrosion that inhibits movement, excessive body corrosion)

Response/Reaction:
*Notify designated operator representative

Evaluation Criteria

Covered Task 719 - Permanent Field Repair Using Composite Materials (Wrapmaster)

49 CFR 192 Reference
192.713

49 CFR 195 Reference
195.422(a)
195.585(a)(2)

Evaluation Method:
Certificate and Oral Examination

Subsequent Qualification Interval
1 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)

Manufacturer Certification

Span of Control
1:0

NOTE:
Obtain and maintain certification from manufacturer

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

Abnormal Operating Conditions

Unintentional release, vapors, or hazardous atmosphere (examples could include, but not limited to; blowing gas, puddles, dead vegetation)

Response/Reaction:
*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; unforeseen wall loss)

Response/Reaction:
*Stop activity and notify designated operator representative
*Mark the location so it may be easily located

Unintended movement of a pipeline that has impaired or is likely to impair the serviceability of the pipeline (examples could include, but not limited to; earthquake, soil instability, equipment vibration, inadequate pipe support)

Response/Reaction:
*Stop activity
*Notify designated operator representative

Evaluation Criteria

Covered Task 762 - Line Stopping Utilizing a Hot Tap Fitting

49 CFR 192 Reference
192.605(b)(5)

49 CFR 195 Reference
195.402(c)(7)

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:0

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/materials

i) Gasket material

ii) Proper sealing element size

c) Pipe attribute information such as

i) Wall Thickness

ii) Diameter

iii) Profile

iv) Location of weld (girth, longitudinal, spiral)

K 2. Explain the information required to be identified prior to performing line stopping

a) Line segment(s)

b) MAOP/MOP

c) Operating pressures/flowrates/velocity before, during and after line stop operations

d) Flow direction

e) Product

f) Past history of interior condition of pipe (ILI results, NDE results, leak history, etc.)

g) Obtain clearance and make proper notifications (e.g.; Operator designated personnel)

S 3. Demonstrate how to install line stopping machine

a) Prepare the stopping machine and valve positioning

i) Verify valve turn count for full open gate/ sandwich valve position

ii) Verify sealing element corresponds to thickness of the pipe

iii) Attach stopping device to actuator, as applicable

iv) Install sealing element on stopping device and lubricate sealing elements, as applicable

v) Retract head into the stopping machine. Ensure stopping device is installed in direction to be stopped

vi)Prior to opening gate valve (sandwich), ensure pressure is equalized on both sides of valve

b)After pressure is equalized, open valve and lower stopping device to the appropriate distance

c)Verify stopping seal(s) are acceptable

d) Monitor stopping equipment and track pressures and volumes during operation

S 4. Demonstrate how to remove stopping device

a) Verify pressure is equalized and remove the stop(s)

b) Ensure stops are completely retracted

c) Close sandwich valve

d) Vent equipment and check for leaks after completion

e) Remove equipment off of valve

S 5. Demonstrate how to install completion plug

a) Verify completion plug is appropriate for fitting and mount plug on machine

b) Mount machine on valve and pressure up machine

c) Lower completion plug to proper location, lock in place and release plug from machine

d) Retract insertion bar

e) Vent and relieve pressure off machine

f) Remove equipment, verify blind flange is installed on stopping tee flange

Abnormal Operating Conditions

Unintended fire and/or explosion on or near the pipeline

Response/Reaction:

*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline. (Examples could include, but not limited to; pipeline damage sustained during the hot tapping / line stopping process)

Response/Reaction:

*Stop activity
*Notify designated operator representative

Failure or malfunction of pipeline component(s) (examples could include, but not limited to; insufficient seal at the stop device, isolation valve fails)

Response/Reaction:

*Stop activity
*Notify designated operator representative

Unintentional release, vapors or hazardous atmosphere (examples could include, not limited to; excess seepage during stopping, blowing gas, leaking sealing element)

Response/Reaction:

*Eliminate potential ignition sources
*Move to a safe location
*Notify emergency response personnel, as appropriate
*Notify designated operator representative

Evaluation Criteria

Covered Task 901 - Hauling, Stringing and Handling Pipe

49 CFR 192 Reference
N/A

49 CFR 195 Reference
N/A

Evaluation Method:
Oral Examination

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe the equipment requirements for hauling pipe.

a. Cribbing,

b. Proper pipe securing equipment,

c. Methods to protect coating.

d. Stacking methods of pipe used during transit

K 3. Explain precautions required for handling pipe to prevent damage to the pipe, bevel and coating

a. Equipment limitations

b. Proper lifting devices and techniques (slings, vacuums, shoes, etc.)

c. Site congestion

d. Overhead obstructions

K 4. Describe equipment requirements for stringing pipe:

a. Equipment limitations,

b. Proper equipment spacing,

c. Proper lifting devices

K 5. Describe the need and requirements for protecting the pipe and coating during placement:

a. Bedding

b. Padding

c. Cribbing

K 6. Discuss the importance for proper placement of pipeline segments

a. Induction bends

b. Wall thickness

c. Grade changes

Abnormal Operating Conditions

Physical damage of pipe that has impaired or is likely to impair the serviceability of the pipeline (examples could include but not limited to; buckling, dents, pipe out of round/ovality, coating damage).

Response/Reaction:

*Notify designated operator representative

Inadequate or damaged lifting tools.

Response/Reaction:

*Notify designated operator representative.

*If qualified to do so, correct the condition and make operator representative aware of action taken to correct condition.

Evaluation Criteria

Covered Task 902 - Field Bending of Pipe

49 CFR 192 Reference
192.313
192.328(a)(1)

49 CFR 195 Reference
N/A

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Explain precautions required when handling pipe to prevent damage to;

a. Pipe

b. Bevel

c. Coating

K 3. Describe the proper machine set-up:

a. Sizing (shoe)

b. Pipe Position

c. Seam Location

d. Internal mandrel operation and importance

K 4. Explain proper field bending criteria and procedures.

a. A bend must not impair the serviceability of the pipe,

b. Each bend must have a smooth contour and be free from buckling, cracks, ovality, or any other physical damage,

c. Operator procedures must be followed where a field bend may potentially affect an existing weld on the pipeline

d. How close the bend can be to the end of the pipe joint (Tangent length)

e. Maximum bend allowance per pipe diameter

K 5. Describe what is meant by:

a. Overbend

b. Sag bend

c. Side bend

d. Combination bend

K 6. Discuss the purpose of a mandrel

S 7. Demonstrate proper equipment setup and simulate field bending of pipe.

Abnormal Operating Conditions

Damage to pipe (examples could include, but not limited to; coating damage, pipe wrinkle bend, elongation or ovality)

Response/Reaction:
*Notify designated operator representative.
*If determined to be within tolerance and qualified to do so, correct the condition
*Make operator representative aware of action taken to correct condition.

Evaluation Criteria

Covered Task 903 - Directional Drilling and/or Boring

49 CFR 192 Reference
192.307
192.319
192.325
192.461
192.620(c)(6)

49 CFR 195 Reference
N/A

Evaluation Method:
Oral Examination

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:2

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe the importance and need of One-Call encompassing the entire excavation to include:

a. Location of Equipment

b.The entrance pit

c. Directional drilling or boring path

d. The exit pit.

e. A meet at the location with the contractor and all affected facility owners.

K 3. Describe how to confirm and maintain the directional drilling or boring path by:

a. Maintaining established clearances,

b. Tracking and recording the path through completion.

K 4. Describe the steps necessary to ensure the integrity of the pipe i.e., (coating, bevel) during the handling and installation of the pipe

a. During a conventional pipe bore, pull through

b. During a pipe directional drill

K 5. Describe the applicable tracking means devices, i.e.

a. electronic locators,

b. pipe lasers,

c. water levels,

d. visual inspection,

e. guidance devices, etc.

f. potholing (when applicable)

Abnormal Operating Conditions

Hidden hazard encountered (examples could include but not limited to; unreported underground facilities; pedestals, pole risers, drops, manhole covers, storm drain outlets, meters, utility)

Response/Reaction:

*Until the hazard can be identified, leave the immediate area

*Notify designated operator representative.

Excavation path cannot be followed by the applicable tracking device or it is determined the drill or bore has left the intended path.

Response/Reaction:

*If unexpected or inconsistent readings are encountered, stop operation.

*Notify designated operator representative.

*If determined to be within tolerance and qualified to do so, correct the condition and make operator representative aware of action taken to correct condition.

Evaluation Criteria

Covered Task 904 - Inspection of Material

49 CFR 192 Reference
192. 328(a)(1)

49 CFR 195 Reference
N/A

Evaluation Method:
Oral Examination

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

K 2. Describe the steps necessary to ensure the integrity of the pipe, components and the coatings is intact:

a. Grade, dimension and wall thickness is correct for the intended use.

b. Visual inspection and/or Holiday detection and marking of holidays,

c. Field repair of coating holidays,

K 3. Explain Visual inspection of the pipe and components,

a. Pipe bends

d. Out of round,

e. Damage due to handling.

Abnormal Operating Conditions

Material defects, anomalies, or physical damage of pipe or a component that has impaired or is likely to impair the serviceability of the pipeline (examples could include but not limited to; pitting, scale, rust, oxidation, corrosion by-product, scratches, dents, insufficient/damaged coating, etc.)

Response/Reaction:

*Stop activity and notify designated operator representative

*Mark the location so it may be easily located

Evaluation Criteria

Covered Task 905 - Lowering/Installation of Steel Pipe into Ditch

49 CFR 192 Reference
192.319
192.328(a)

49 CFR 195 Reference
195.246

Evaluation Method:
Observation & Oral Exam.

Subsequent Qualification Interval
3 Years

Supporting Documentation Required
(If training is required, appropriate training documentation must be submitted with this ROE.)
None

Span of Control
1:1

K/S

K 1. Explain what is required prior to performing task

a) Operator-approved procedures

b) Appropriate equipment/material

S 2. Demonstrate how to perform equipment check to verify that equipment functions within specified parameters

a) Ensure slings, rollers or installation equipment are in good condition

K 3. Describe the required ditch size and conditions for proper installation

a) Proper ditch configuration to prevent excess pipe stress

b) Requirements and need for bedding and padding

c) Proper ditch depth to accommodate the pipe and ensure adequate cover per the operator requirement

d) Adequate clearance from underground utilities or structures

K 4. Describe how to identify the following types of defects, prior to installation and backfill:

a) Coating damage (i.e., cuts, scratches, missing, etc.,)

b) Gouges

c) Dents

d) Corrosion

e) Buckles

f) Wrinkles

g) Ovality

K 5. Describe the considerations for lowering pipe into the ditch.

a) How to prevent pipe stress in order to prevent damage

b) Equipment limitations and proper spacing for lowering pipe.

c) Precautions required when handling pipe to prevent damage.

d) Precautions required when handling pipe to insure the integrity of the pipeline coating.

e) Engineering Critical Assessment (ECA) - if applicable

K 6. Describe considerations for support of pipe in ditch:

a) Recommended height differential allowed between pipe supports and during pipe movement

b) Horizontal distance between supports

c) Distance supports should be located from girth welds

d) Distance heavy components should be from supports

e) Pipe supports must not cause coating damage or cause potential corrosion cells.

f) Proper installation of negative buoyancy components (concrete coating, bags, screws, concrete blocks, etc.)

Abnormal Operating Conditions

Physical damage of pipe that has impaired or is likely to impair the serviceability of the pipeline (examples include but not limited to; buckling, dents, pipe out of round/ovality, coating damage).

Response/Reaction:

*Notify designated operator representative

Inadequate or damaged lifting tools.

Response/Reaction:

*Notify designated operator representative.

*If qualified to do so, correct the condition and make operator representative aware of action taken to correct condition.

Unstable soil

conditions

Response/Reaction:

*Stop activity

*Notify designated operator representative.

*If qualified to do so, correct the condition and make operator representative aware of action taken to correct condition.

APPENDIX C

Recognized Flexsteel Tasks

3 APPENDIX A: COVERED TASK LIST

The following table lists the Covered Tasks for FlexSteel Pipeline Technologies, Inc. that has implications on the safety and integrity of a pipeline facility pursuant to 49 CFR 192 and 49 CFR 195:

TASK	NAME	DESCRIPTION	SPAN OF CONTROL [1]	RE-EVALUATION INTERVAL
10.00F	Repair Pipeline Damage	This task includes the appropriate means of identifying damage and utilizing the correct repair method when damage is discovered to FlexSteel pipeline products	1-3	3 years
20.00F	Handling of Pipe [2]	This task includes the measures taken to safely deploy and install FlexSteel pipe	1-3	3 years
30.00F	Annulus Pressure Test	This task includes the actions necessary to perform an annulus test to verify shield integrity on FlexSteel pipe	1-3	3 years
40.00F	Joining of Pipe [3]	This task includes the steps necessary to correctly swage a FlexSteel fitting to FlexSteel pipe to join pipe	1-2	3 years

(1) The span of control for an unqualified person to be observed by a qualified individual is listed above; however, in the classroom portion of initial qualification, the instructor is allowed to observe up to six individuals at a time. Nonetheless, each person much be individually evaluated in order to advance in training.

(2) Qualifications for Handling of Pipe are categorized by package (e.g. reeled pipe or coiled pipe) and by FlexSteel pipe size and pressure ratings, as applicable. Equipment used during the pipe deployment installations by package types is also a factor in qualifying technicians in Handling of Pipe. Further, special handling recommendations and requirements inherent to the application in which the pipe is unspooled further sub-divides qualifications related to pipe handling.

(3) Qualifications for Joining of Pipe are categorized by specific procedures written to the equipment used during the installation and for the compatibility of fittings given FlexSteel pipe sizes, pressure ratings, and applications.

4 APPENDIX B: COVERED TASKS STANDARDS

This section contains the standards for each of the tasked identified by the Company as a Covered Task pursuant to the four-part test that defines the criteria established by the Department of Transportation in the Preamble to the regulation found in the Federal Register dated August 27, 1999, Pages 46859-46860.

The pages that follow outline each of the Covered Task's Task Description, Abnormal Operating Conditions, Training and Evaluation Methods, Re-evaluation Frequencies, Terminology, Competencies and Prerequisites for the following Covered Tasks:

1. **Task 10.00F – Repair Pipeline Damage**
2. **Task 20.00F – Handling of Pipe**
3. **Task 30.00F – Annulus Pressure Test**
4. **Task 40.00F – Joining of Pipe**

14.1 STANDARD FOR COVERED TASK 10.00F – REPAIR PIPELINE DAMAGE

Applicability: Natural Gas and Hazardous Liquid

Regulation Reference: 192.605, 192.713, 195.422(a)&(b)

14.1.1 Task Description

Natural gas and hazardous liquid pipelines may sustain damage from third party damage, internal corrosion, external corrosion, earthquake or other forces. To maintain the integrity of the pipeline, damage or imperfections must be repaired as soon as possible after they are identified. Additionally, they must be repaired in conformance with DOT Part 192 and Part 195 and the repairs documented with the documentation kept for the life of the pipeline.

Elements of the task may include:

- Identification of the damage.
- Assessment of the severity of the damage.
- Evaluation and assessment of repair methods required.
- Preparing the pipeline for repair and maintenance.
- Ensuring that pipeline LOTO procedure has been followed before performing repairs.
- Operating a portable gas detection device, when required.
- Supervising contractor or company personnel, both qualified and non-qualified.
- Designing the repair procedure, including confirmation of suitability of repair materials.
- Documenting the repair in the correct format.

14.1.2 Abnormal Operating Conditions

The following abnormal operating conditions could be encountered while performing this task.

CONDITION	POSSIBLE CAUSE(S)	RESPONSE

Release of natural gas or hazardous liquids	• Refer to “Damage to Shield”
	• Refer to “Damage to Fitting”
	• Leaking valve
	• Improper LOTO procedure followed or not performed
		• Stop Work
		• Notify pipeline operator
		• If related to FlexSteel product, when safe to do so:
		  • Contact FlexSteel HSEQ
		  • Isolate leak
		• Repair or replace damaged area as applicable

CONDITION	POSSIBLE CAUSE(S)	RESPONSE

Natural gas present in area	NOTE: Some small releases of gas may occur through venting (See "Venting" in Installation and Operation Manual)
	• Fitting or flange leaks caused by corrosion
	• Improper pig used when cleaning liner of pipe as part of maintenance practices
	• Pipe rupture due to malfunction or operating error that causes the pressure of the pipe to rise above the specific maximum operating pressure
		• Stop Work
		• Notify pipeline operator
		• If related to FlexSteel product, when safe to do so:
		  • Contact FlexSteel HSEQ
		  • Isolate leak
		  • Repair or replace damaged area as applicable

Hazardous liquids present in area	• Fitting or flange leaks caused by corrosion
	• Conveyance of fluid incompatible with pipe causing damage to interior HDPE pipe fluid containment layer and steel reinforcements
	• Lack of maintenance (e.g. lack of paraffin inhibitor or pigging)
	• Improper pig used when cleaning liner of pipe as part of maintenance practices
	• Pipe rupture due to malfunction or operating error that causes the pressure of the pipe to rise above the specific maximum operating pressure
		• Stop Work
		• Notify pipeline operator
		• If related to FlexSteel product, when safe to do so:
		  • Contact FlexSteel HSEQ
		  • Isolate leak
		  • Repair or replace damaged area as applicable

Damage to the shield (outer HDPE coating) of the pipe	• Complete breach of the shield with resulting damage to the steel strip layers from improper installation techniques, encroachment of equipment or vandalism. • Pipe rupture due to malfunction or operating error that causes the pressure of the pipe to rise above the specific maximum operating pressure	• Notify pipeline operator if shutdown required • Contact FlexSteel HSEQ • Perform investigation into cause • Repair or replace damaged section (if internal steel reinforcements are visible); install fitting
Damage to fitting	• Corrosion has penetrated the fitting due to improper fitting material • Corrosion or damage due to the fitting not being wrapped or improperly wrapped • Encroachment by equipment • Vandalism • Pipe rupture due to malfunction or operating error that causes the pressure of the pipe to rise above the specific maximum operating pressure	• Notify pipeline operator if shutdown required • Contact FlexSteel HSEQ • Perform investigation into cause • Cut out and replace damaged fitting
Fluid coming out of vent ports	• Water in the annulus (e.g. water may have been trapped during installation process prior to fitting install) • Due to malfunction or operating error that causes the pressure of the pipe to rise above the specific maximum operating pressure	• Contact FlexSteel HSEQ • Isolate leak

CONDITION	POSSIBLE CAUSE(S)	RESPONSE
Bulge in the outer shield	• Improper venting • Due to malfunction or operating error that causes the pressure of the pipe to rise above the specific maximum operating pressure	• Notify pipeline operator if shutdown required • Contact FlexSteel HSEQ • Perform investigation into cause
Distortion of the end fitting shape (e.g. bent neck)	• Improper fitting selected • Malfunction or operating error that causes the pressure of the pipe to rise above the specific maximum operating pressure	• Notify pipeline operator if shutdown required • Contact FlexSteel HSEQ • Perform investigation into cause
Distortion of pipe shape or axial alignment	• Malfunction or operating error that causes the pressure of the pipe to rise above the specific maximum operating pressure	• Contact FlexSteel HSEQ
Twisting of the riser or support	• Installation error backfilling and bracing	• Notify pipeline operator • Contact FlexSteel
Loosely threaded, blocked or damaged vent hardware	• Improper venting installation performed • HDPE coating on shield has blocked the vent port (missing VAR) • Damage caused by equipment encroachment	• Contact FlexSteel • Tighten hardware, as required • Remove cause of blockage, as required • Replace damaged hardware; employ proper venting installation techniques
Loose studs/nuts on end connections	• Improper installation techniques • Pipe vibrations	• Notify pipeline operator to tighten/torque loose studs/nuts in accordance to pipeline requirements or manufacturer recommendations • Contact FlexSteel

In the event a non-conformance is identified in the product, product compatibility, equipment or the performance of the task, the qualified individual is required to follow the Company Nonconformance, Corrective and Preventative Action Procedure (QAC-P-1107). This procedure provides the actions necessary for reporting, determining root cause and identifying corrective actions (if any) with respect to non-conformances.

Notes

Small water leakage from vent ports during the conditioning phase of commissioning a pipeline may not pose a risk of pipe failure; however, a thorough and accurate hydro test that monitors that the test pressures do not fall outside of test pressure ranges should be followed. It is recommended that a field hydro test be performed before the fittings are buried. Nonetheless, FlexSteel does assign severity to leaks or damage based on risk to personnel and the environment and the extent the incident has on the operation of the in-service pipeline. It is important to note that any temporary repair should be permanently repaired as soon as possible.

14.1.3 Training and Evaluation Methods

Refer to the Qualification Process of this document which includes evaluation methods, evaluation criteria, job performance observations, the evaluation process and re-evaluation criteria.

Prior to qualification, the Company employee or contractor must complete the **FlexSteel Installation Certification Program**. This program includes classroom and field training by certified evaluators as part of their initial qualification. The program also addresses requirements for maintaining certification as part of their subsequent re-evaluations

which includes job performance observations (audit) and an annual written exam as well other criteria. For more information, refer to document number TRN-H-9603, latest rev.

14.1.4 Re-evaluation Frequency

At a minimum, qualified personnel will be evaluated **every three (3) years** during their annual re-evaluation. This will cover their ability to recognize damage and their understanding in proper repair techniques given damage and product non-conformance. If any damage is discovered during the re-evaluation, the qualified individual's ability to perform proper repair technique will be observed and evaluated.

14.1.5 Terminology

IMPERFECTION OR DAMAGE – Any attack on the pipeline, by corrosion, third party damage or other manner that affects the integrity of the pipeline.

PERMANENT REPAIR – Repairs, consistent with 192.713, that are made to a pipeline system that has sustained an imperfection or damage.

TEMPORARY REPAIR – Immediate steps taken by a pipeline operator to protect the public whenever a leak, imperfection, or damage that impairs the serviceability of a pipeline is discovered.

14.1.6 Competencies

To be qualified on this task, an individual must be able to:

- Identify and assess the severity of the anomaly.
- Identify method of repair – Temporary or permanent.
- Plan repair activity.
- Supervise repairs.
- Document the repair in the correct format.
- Recognize when a follow-up annulus and/or hydro test may need to be performed to highlight any additional AOC.

14.1.7 Prerequisites

Prior to performing this task, an individual should possess the following basic knowledge and skills:

- Be knowledgeable of the hazards of the natural gas or hazardous liquid being transported.
- Know the steps to request and confirm shut-down and LOTO of an affected the pipeline.
- Know the Company safety policies.
- Be familiar with OSHA and environmental regulations.
- Be knowledgeable in the limitations of various repair methods.

14.1.8 Steps for Performing Task 10.00F – Repair Pipeline Damage

STEP	ACTION	NOTES
1	Locate the damaged area on the pipeline and assess the severity of the damage. Considering pipeline pressure, location and overall condition. **Notice: If the damage has resulted in the pipeline leaking, immediate steps should be taken to control the leak and protect the public. Installation of a temporary repair clamp may be appropriate or a complete shutdown of the pipeline system may be required.**	The damaged area, especially if caused by corrosion, may extend past the visible area. Further investigation to ascertain the overall area of corrosion may be required. It is important to accurately evaluate the severity of the damage.
2	There are two types of repairs that can be made to FlexSteel pipe: 1. Temporary Outer Shield repairs will be performed into accordance to manufacturer recommendations and can include: • Heat shrink sleeves • Approved tape • Smith-Blair Clamp 2. Damage to the steel layer is repaired by removing the damaged area and replacing the section of pipe and installing midline fitting(s).	Permanent repair (pipe replacement) is always the preferred plan, however, temporary repairs are allowed to the extent that the damaged area will be permanently repaired in a reasonable amount of time. The preferred permanent repair is to remove a cylinder of pipe and replace with new pipe. Important Note: 1. A permanent repair of the pipe outer shield is not always possible. FlexSteel recommends that repairs to pipe outer shield (especially following a cut-out such as when steel reinforcements are exposed) must be effectively annulus tested after performing the repair. FlexSteel recommendations should be closely followed in testing of replacement of pipe. 2. To install a new Midline or EF fittings, the installer must be trained and certified by FlexSteel 3. Certified installer must perform the fitting installation in accordance to FLD-P-9901 2-in to 6-in Midline/EF Fitting Installation Procedure or FLD-P-9907 8-in Midline/EF Fitting Installation Procedure, as applicable.
3	Initiate pipeline operational condition changes, if required, to prepare for repairs. These could include shutting down the pipeline, lowering the pressure on the pipeline or making no changes at all.	Significant damage including repairs that requires technician to perform cutting operations will require that the pipeline be shut down. Shut down operations may be required for some repairs, especially in inhabited areas. Lesser damage may require only that the pressure be lowered.
4	Assemble repair material and personnel.	Repair material must be of suitable strength to support the MAOP/MOP for which the pipeline is permitted. If a cylinder of pipe is removed and replaced, the replacement pipe must be pressure tested prior to the installation and an annulus test performed after installation. Installers must be Qualified and Certified to perform the installation of fittings on the pipeline. FlexSteel Certifications are required.

STEP	ACTION	NOTES
		Notice: It is the responsibility of the employee to ensure that material for the repair is satisfactory and that persons performing the repair are qualified.
5	Conduct a site investigation to determine that the pipeline is safe to repair.	Use of portable gas detector is required to determine the presence of natural gas or hazardous liquid.
6	Perform the repair.	Appropriate safety precautions such as fire watch, hot work permits, confined space entry permits etc. must be observed, if applicable. Activities associated with the repair must be conducted according to good engineering practices, FlexSteel repair methods and/or recommendations and procedures found in the pipeline's O&M Manual and/or Standard Operating Procedures. Review and compliance with the following procedures may apply: • Excavating the pipeline • Backfilling the pipeline • Purging the pipeline • Locating and marking the pipeline • Testing the annulus • Testing the pipeline
7	If operational changes were made, return the pipeline to normal service.	**Caution: If any portion of the pipeline was exposed to the atmosphere the pipeline must be purged of air. Follow purging procedures identified in other Covered Task Standards**
8	If the pipeline was buried and once excavation is complete, conduct and document an exposed pipe inspection.	The individual conducting the inspection on that task must be OQ qualified.
9	Document the repair on the proper form and on pipeline drawings; submit to the responsible supervisor for review.	The documentation should be filed in the appropriate folder for DOT compliance and must be maintained for the life of the pipeline.

14.2 STANDARD FOR COVERED TASK 20.00F – HANDLING OF PIPE

Applicability: Natural Gas and Hazardous Liquid

Regulation Reference: 192.143, 192.203, 195.101(a), 195.422

14.2.1 Task Description

FlexSteel pipe must be handled properly to prevent damage to the outer shield or internal steel reinforcements affecting the integrity of the pipe. This includes transporting, deploying (stringing), lifting, lowering into the ditch and backfilling. Proper handling techniques and equipment use are essential to ensure the pipe is not damaged during these tasks. Visual inspection of backfill material, installation of pipe protective material (i.e. padding, shading, and rock shield), and verifying the firm support and placement of backfill in lifts or layers. This task also includes taking all actions necessary to assure adequate pipeline support during excavation activities (e.g. installing bridging, bracing, etc.).

Elements of the task may include:

- Perform Job Safety Requirements
- Unload reels or coils of pipe
- Ensure proper installation in ditch
- Ensure ditch is free of material that could damage pipe outer shield
- Ensure lay on solid bottom or properly spaced supports
- Ensure pipe bends fit to ditch without violating pipe minimum bend radius (MBR)
- Ensure proper backfilling and that backfill material is of proper composition and free of material that could cause damage
- Ensure proper use of protective material such as rock shield or padding the bottom of the trench with sand when sharp rocks in the trench could damage the pipe shield.
- Prevent voids under pipe; compaction, if necessary
- Prevent pipe stress/movement by filling from both sides in the ditch
- Recognize and react to AOCs

14.2.2 Abnormal Operating Conditions

The following abnormal operating conditions could be encountered while performing this task.

CONDITION	POSSIBLE CAUSE(S)	RESPONSE
Unexpected presence of hazardous liquid or gas	• Leaking valve • Improper LOTO procedure followed or not performed	• Stop work • Notify pipeline operator
Damage to the shield (outer HDPE coating) of the pipe	• Excessive rocks in backfill material • Splitting of the outer shield due to cold weather, exposing the steel strip layers. • Splitting the outer shield due to over-tensioning, exposing the steel strip layers. • Improper handling of pipe during deployment (e.g., striking or gouging pipe with equipment or surface) resulting in a complete breach of the shield and damage to the steel strip layers.	• Repair or replace damaged section (if internal steel reinforcements are visible); install midline, if cut-out performed. • In cold weather installations, preheat pipe to recommended temperature prior to deployment • Monitor pull tensions throughout deployment • Backfill ditch with small amounts of material on each side until pipe is properly covered, if required • Backfill with a cushion material to protect pipe before the pipe is laid in the trench, if required
Torqueing of pipe / Torsional twists	• Improper deployment technique employed • Temperature too low to perform installation without pre-heating pipe	• Assess extent of the torqued area(s) to determine if affected area should be cut out and a fitting installed. • Properly support pipe for bends and lifting • Avoid turns in close proximity to reel or deployment equipment • In cold weather installations, preheat pipe to recommended temperature prior to deployment • Deploy pipe in straight line as much as possible then make bends and turns
Ovalization	• Improper deployment technique employed • Over-tensioning the pipe during pulls, especially in PIs, trenches, bores or carrier pipe	• Monitor pull tensions throughout deployment • If steel reinforcements have become creased, cut-out damaged section and join with midline

Kinked Pipe	• Third party damage • Bends or turns that will violate the maximum bend radius of the pipe • Improper installation technique • Damage during transportation or deployment • Temperature too low to perform installation without pre-heating pipe	• Cut out damaged section; install fitting. • In cold weather installations, preheat pipe to recommended temperature prior to deployment • Use proper support for turns and lifting

In the event a non-conformance is identified in the product, product compatibility, equipment or the performance of the task, the qualified individual is required to follow the Company Nonconformance, Corrective and Preventative Action Procedure (QAC-P-1107). This procedure provides the actions necessary for reporting, determining root cause and identifying corrective actions (if any) with respect to non-conformances.

14.2.3 Notes

Deployment tensioning specifications are determined by the pipe size and class and documented in the FlexSteel Installation and Operations Manual and/or a Company Pipe Design Sheets of Field Note. FlexSteel Pipe Design Information must be reviewed prior to installation. Deployment Equipment checklists will be reviewed and followed based on the type of equipment used.

14.2.4 Training and Evaluation Methods

Refer to the Qualification Process of this document which includes evaluation methods, evaluation criteria, job performance observations, the evaluation process and re-evaluation criteria.

Prior to qualification, the Company employee or contractor must complete the **FlexSteel Installation Certification Program**. This program includes classroom and field training by certified evaluators as part of their initial qualification. The program also addresses requirements for maintaining certification as part of their subsequent re-evaluations which includes job performance observations (audit) and an annual written exam as well other criteria. For more information, refer to document number TRN-H-9603, latest rev.

14.2.5 Re-evaluation Frequency

At a minimum, qualified personnel must be reevaluated by observation at a minimum of **every (3) years** in order to maintain their qualification to perform this covered task. Between observations, the technician who has achieved qualification must successfully complete an examination to ensure they are up-to-date on the latest pipe handling methods.

14.2.6 Terminology

BACKFILLING – The act of covering the pipe with soil.

MIDLINE FITTING – Fitting used to join two ends of pipe together.

DEPLOYMENT EQUIPMENT – Equipment used to un-spool reels or coils of FlexSteel pipe.

SUPPORT – Techniques used to prevent over stressing pipe. These include but are not limited to filling or blocking under the pipe in a ditch, use of multiple points of contact when lifting and multiple points of contact when make a turn or bend with the pipe.

OUTER SHIELD – External coating (HDPE) of FlexSteel pipe.

14.2.7 Competencies

To be qualified on this task, an individual must be able to:

- Select and properly adjust deployment equipment.
- Understand proper deployment techniques based on temperature, terrain and application.
- Visually inspect components to determine their conformance with the requirements for the pipe.
- Inspect pipe for damage prior to backfilling.
- Understand tension values for deployment and pulling of pipe.
- Document any anomalies in the correct format.

14.2.8 Prerequisites

Prior to performing this task, an individual should possess the following basic knowledge and skills:

- Be familiar with general pipeline terminology.
- Know the operating characteristics of the deployment equipment.
- Know the pressure, temperature and bend radius limitations of the material for installation.

14.2.9 Steps for Performing Task 20.00F – Handling of Pipe

STEP	ACTION	NOTES
1	Unload pipe reels or coils from transport vehicle	Unload pipe reels using approved lifting techniques. Inspect pipe to ensure proper installation on reel/in coil and verify no damage has occurred during transportation.
2	Select the proper deployment equipment	Pipe specifications, ambient temperature and terrain should be considered when making this determination.
3	Inventory fittings and pipe against product and application specifications to verify proper materials to be used.	An inventory of fittings and pipe will verify proper materials for the design of the pipeline prior to installation.
4	Verify ditch is in compliance with OSHA regs for safe entry and cut allows for recommended turn radius for design of pipe.	Verify turns in ditch meet turn radius for pipe to be installed. Have ditch modified, if possible, to meet the turn required.
5	Using proper Daily Equipment Inspection Checklist, verify that deployment equipment meets the criteria determined in step 2.	The appropriate checklist shall be filled out daily to verify proper tension for deployment.
6	Deploy pipe.	The best technique is to deploy pipe past turns and pull slack in the pipe so it conforms to turns. Pipe Specification Sheet for pipe specifications related to maximum installation tensions and maximum temperature values are referenced as needed.
7	After fitting installations performed, coat underground fittings joining pipe.	Use selected coating for underground fittings used to join pipe

8	Verify support of pipe in ditch.	Pipe should be supported without voids on the bottom of ditch. Turns and bends should be inspected to insure no damage will occur during backfilling.

STEP	ACTION	NOTES
9	Backfill ditch.	Backfilling should be done with small quantities on each side of the pipe to ensure even cover and no compressive damage to pipe.
10	Documentation should be placed in the record of the repair or construction and include manufacturer delivery papers.	FlexSteel maintains permanent records of all components installed in the pipeline.

14.3 STANDARD FOR COVERED TASK 30.00F – ANNULUS PRESSURE TEST

Applicability: Natural Gas and Hazardous Liquid

Regulation Reference: 192.Subpart I, 195.Subpart H

14.3.1 Task Description

Pipelines that are currently in service and are exposed for any reason must have their coating inspected for deterioration. This is confirmed with an appropriately designed and implemented annulus pressure test. Additionally, when a pipeline is repaired by the installation of a replacement section of pipe, the entire pipeline annulus must be tested to verify the integrity of the shield.

Elements of the task may include:

- Calibration of pressure test recording instruments
- Determination of the pressure to which the segment must be tested
- Selection of pressure test medium
- Supervision of employees/contractors
- Selection of documentation methods

14.3.2 Abnormal Operating Conditions

The following abnormal operating conditions could be encountered while performing this task.

CONDITION	POSSIBLE CAUSE(S)	RESPONSE
Unexpected presence of hazardous liquid or gas	• Leaking valve • Improper LOTO procedure followed or not performed	• Stop work • Notify pipeline operator

Annulus will not hold pressure	• Shield is damaged resulting in exposure of steel strip layers
	• Improper installation of or leaks within the annulus test equipment
	• Improperly installed vent lines
	• Improper connection between gas source and annulus testing apparatus
		• Switch sides and introduce gas from opposite fitting
		• Perform soap test on equipment and equipment connections; repair or tighten as required
		• Isolate potential leak sources
		  • Determine isolation method, if needed
		  • Perform isolation test
		  • Repair or replace affected pipe section; and/or
		  • Replace fitting, if necessary
		• If source of issue is not identified, contact HSEQ for further assistance

CONDITION	POSSIBLE CAUSE(S)	RESPONSE

No communication between fittings	• Shield is damaged resulting in exposure of steel strip layers
	• EF or Midline connection is damaged
	• Blockage of vent paths
	• Improper installation of or leaks within the annulus test equipment
	• Damaged or blocked vent lines
	• Improper connection between gas source and annulus testing apparatus
		• Switch sides and introduce gas from opposite fitting
		• Double check annulus procedure to verify correct use of annulus testing hardware (e.g. wrong valve closed)
		• Isolate potential leak sources
		  • Determine isolation method, if needed
		  • Perform isolation test
		  • Repair or replace affected pipe section; and/or
		  • Replace fitting, if necessary
		• If source of issue is not identified, contact HSEQ for further assistance

14.3.3 Notes

There can be variations in testing procedures, test medium and test pressures based on many factors. These factors may include location of the pipeline segment, whether the segment is buried or exposed. Given the number of variables that may affect a pressure test, this standard will provide guidance on actual testing of the segment and will not address engineering work related to the design of the test.

14.3.4 Training and Evaluation Methods

Refer to the Qualification Process of this document which includes evaluation methods, evaluation criteria, job performance observations, the evaluation process and re-evaluation criteria.

Prior to qualification, the Company employee must complete the **FlexSteel ShieldSure™ Annulus Test Certification Training**. This training addresses the safety factors, procedure and troubleshooting aspects for performing an annulus test on a FlexSteel pipeline. For more information, refer to document number FLD-P-9922, latest rev.

14.3.5 Re-evaluation Frequency

At FlexSteel, annulus testing is a specialized certification. At a minimum, qualified personnel must be re-evaluated

every three (3) years in order to maintain their qualification to perform this covered task.

14.3.6 Terminology

ANNULUS – The area between the outer coating or shield and the metal layer.

CALIBRATION DEVICE – Equipment such as a dead weight tester, test thermometer etc. which is used to verify that recording devices are accurate.

MIDLINE CONNECTION – The fitting used to connect two sections of FlexSteel pipe.

EF CONNECTION – The end fitting used to tie FlexSteel pipe to pipelines constructed of other materials.

PRESSURE TEST – A procedure comprised of filling the annulus with a test medium and elevating the pressure of the segment to a predetermined level and then monitoring this pressure for a defined period of time.

RECORDING DEVICE – A calibrated device that generates a permanent record of conditions associated with the pressure test. At a minimum the required record should include pressure and time.

TEST MEDIUM – The material used to fill the pipeline segment and to elevate the internal pressure of the annulus. The test medium is a non-reactive/non-corrosive inert gas. Nitrogen is recommended.

14.3.7 Competencies

To be qualified on this task, an individual must be able to:

- Follow the test procedure based on FlexSteel FLD-P-9922, latest rev.
- Supervise the test activities.
- Document the pressure test in the correct format on FlexSteel FLD-P-9922A, latest rev, and retrieve data from digital gauges used to perform the test.

14.3.8 Prerequisites

Prior to performing this task, an individual should possess the following basic knowledge and skills:

- Trained to perform ShieldSure™ Annulus Test.
- Be aware of hazards of nitrogen and material under pressure.

14.3.9 Steps for Performing Task 30.00F – Annulus Pressure Test

STEP	ACTION	NOTES
1	Determine the type of pressure test to be conducted	An employee may be required to perform either of two types of annulus pressure tests: 1) test pipeline that is already installed and 2) new construction pipeline.
2	This task standard is focused on the testing of a pipeline that is installed within or above the ground; however, the standard can be modified to accommodate the testing of pipe to be used for repair, etc.	Documentation is equally important for both types of tests.
3	Evaluate the pipeline to be pressure tested and determine: 1. The pipe size and pressure rating. 2. Number of Midline connections. 3. The length of the pipeline. 4. Any known defects in the pipeline.	When this information is gathered, it should be verified and noted on the test pressure report or plan.
4	Determine test pressure based on pipe information.	Monitor the annulus pressure at all times. Do not allow the pressure in the annulus to exceed 50 psig.
5	Select the non-reactive/non-corrosive medium to be used to test the pipeline.	Although various inert gases may be used for the test medium, nitrogen is recommended.
6	Calibrate and certify the devices that will be used to document the progress and successful completion of the pressure test.	Certification documents are a requirement for a qualified test and must be retained with other records of the test. It is not unusual for operations to not be properly equipped to effectively monitor and document a pressure and therefore, the use of third party testing companies is typical. If using a third party, they must provide the required certification documents. **Calibrations should be performed at least annually.**

7	Prepare the pipeline for the test: 1. Locate the fittings on the pipe to be tested.	Each end fitting has 2 vent ports. One is used for testing and the other should be properly plugged. Test

STEP	ACTION	NOTES
	2. Install a valve, calibrated test pressure gauges, pressure regulator and source of inert gas on the upstream fitting. 3. Install calibrated test pressure gauges and valve on the downstream fitting.	equipment should be properly installed and tested for leaks with soapy water.
8	Introduce inert gas at the upstream fitting up to 40 psig and hold. Document the start time of the test. Periodically verify that the digital and analog gauges are working properly by checking that the digital gauge and analog gauge have a similar (no greater than a 3 psi variance) pressure reading.	Monitor the pressure at all times **Caution: At no time during the test should the pressure be allowed to exceed 50 psig.**
9	Continue to flow inert gas until downstream pressure reaches 20 but not to exceed 30 psig. When required pressure is reached downstream stop gas flow and close upstream valve. Record initial stabilization pressures and time for each end.	The time between the start of the annulus test and the time at which the stabilization process commences is referred to as the Communication Time. This will vary for each annulus test.
10	Continually monitor pressures upstream and downstream at 15 minute intervals. The period of time to continue monitoring pressure is the Hold Period, and should be monitored for the greater of half the time required during the Communication Time or 30 minutes, whichever is greater.	**Caution: The official test must be restarted anytime that a leak is discovered and repaired or when additional pressure is added due to temperature changes. Slight variations due to temperature changes may be observed and thus is a good idea to initially pressure the pipeline to a pressure slightly above the desired test pressure to compensate for these variations. At no time during the test should the pressure be allowed to exceed 50 psig.**
11	The test is acceptable if there is no more than 3 psi system pressure loss during the Hold Period.	Pressure stability signals a successful test.
12	When test is complete perform the following: 1. Turn off Crystal gauge by pressing the power button. 2. Open the bleed-off valves on the test tree assemblies to depressurize the annulus. 3. End Crystal gauge data acquisition by pressing and holding "Units" button for 3 seconds. 4. Remove test tree assemblies. 5. Install venting hardware as per the standard established by the pipeline operator or in accordance to FlexSteel venting recommendations	All vents ports should be checked for debris prior to installation of vent valves and vent tubing.
13	If annulus test is not acceptable contact FlexSteel Pipeline Technologies for additional testing recommendations.	A review of data collected during the test will help determine corrective measures.

14.4 STANDARD FOR COVERED TASK 40.00F – JOINING OF PIPE

Applicability: Natural Gas and Hazardous Liquid

Regulation Reference: 192.271, 192.273, 195.214, 195.222

14.4.1 Task Description

FlexSteel pipe must be joined properly to prevent damage to the outer layer or internal components affecting the integrity of the pipe. This includes inspecting the internal and external surfaces of the pipe and fitting. Proper handling techniques and equipment use are essential to ensure the pipe is not damaged during this task. Proper use of joining equipment and proper installation of fittings is essential to pipeline integrity.

Elements of the task may will include:

- Perform Job Safety Requirements at each stage of the operation
- Identify proper swaging and tooling equipment per pipe specifications
- Prepare and inspect pipe and fittings for installation
- Perform internal measurements of pipe (ID) and fitting jacket OD
- Perform the swaging operation/process
- Complete the proper quality documentation for each fitting connection
- Recognize and react to Abnormal Operation Conditions (AOCs)

14.4.2 Abnormal Operating Conditions

The following abnormal operating conditions could be encountered while performing this task.

CONDITION	POSSIBLE CAUSE(S)	RESPONSE
Unexpected presence of hazardous liquid or gas	• Leaking valve • Improper LOTO procedure followed or not performed	• Stop work • Notify pipeline operator
Fittings or Pipe are not compatible	Ex. Check to ensure pipe and fitting are compatible (e.g. STD fitting not installed onto HT or HP pipe); correct material used (CS vs SS) • Shipping error • Order error • Stamping error on fitting (e.g., CS vs. SS discovered following magnet test)	• Contact FlexSteel Project Coordinator to replace with compatible materials • Complete an NCR with HSEQ • If erroneous fitting installed, contact FlexSteel for further instruction • If erroneous pipe deployed, contact FlexSteel for further instructions
Fitting cannot be prepared for installation	• Missing O-ring • Missing VAR	• Contact FlexSteel Project Coordinator to expedite replacement fitting or parts • Complete an NCR with HSEQ

CONDITION	POSSIBLE CAUSE(S)	RESPONSE
Fitting will not slip over pipe	• Pipe was not adequately cleaned and deburred • Pipe is not round enough to receive fitting • Pipe has been over tensioned in deployment • Incorrect fitting	• Ensure pipe is adequately cleaned, deburred. • If not round, the pipe may be re-rounded with c-clamp • If over-tensioned, cut back pipe to acceptable section of pipe • The fitting is not compatible with an older, outdated pipe product line. Contact FlexSteel for further instructions. • If incorrect fitting, contact FlexSteel Project Coordinator or HSEQ
Kinked pipe	• Third party damage • Improper installation technique during deployment process • Damage during transportation	• The kinked area shall be cut out and a fitting installed
Incorrect Die Selected	• Improper measurements taken because measuring equipment not properly calibrated • Incorrectly read the die selection table • Incorrect die selection table used (e.g., bore gage vs. caliper) • Correct die is not available on the jobsite	• Verify measuring equipment is calibrated on a daily basis. • Use the correct die selection table • If correct die is not available, contact FlexSteel Engineering for recommendations
Uneven swage of fitting	• Excess build-up of material on die • Incorrect die used (e.g., wrong size and/or incorrect die mate(s) used) • Dies were improperly seated in swage machine • Did not lubricate or adequately lubricate fitting jacket before swage	• Clean and polish dies at the end of each day or after each use with high temperature fitting installations • Contact FlexSteel for further instructions. Depending on severity of damage, the fitting may need to be cut out and replaced with a new fitting.
Swage machine pressure is less than 2000 psi midway in swage	• Incorrect die selected • Equipment malfunction	• Re-measure jacket OD and re-swage • If equipment issue, contact FlexSteel Equipment Services or HSEQ
Final jacket measurement does not achieve proper spring-back value(s)	• Inadequate compression of fitting	• Swage jacket again with same die size or next die size down
Venting was not installed or properly installed	• Incorrect configuration used • Incorrect hardware installed	• Perform or correct venting installation process in accordance to FlexSteel recommendations

Qualified personnel must be familiar with fitting procedures and the timely completion and accuracy of the Fitting Installation Inspection Forms as evidence of each fitting installation performed.

In the event a non-conformance is identified in the product, product compatibility, equipment or the performance of the task, the qualified individual is required to follow the Company Nonconformance, Corrective and Preventative Action Procedure (QAC-P-1107). This procedure provides the actions necessary for reporting, determining root cause and identifying corrective actions (if any) with respect to non-conformances.

14.4.3 Notes

All joining of pipe shall be done by FlexSteel Certified Technicians who shall adhere to the following procedure, given pipe size:

- For 2-in to 6-in Midline / EF fitting installations Operating Procedure FLD-P-9901, latest version, will be followed for fittings sized/rated 2-in, 3-in, 4-in and 6-in up to 2250 psi;
- For 8in Midline / EF fitting installations Operating Procedure FLD-P-9907, latest version, will be followed for fittings sized/rated 6-in 3000 psi and 8-in.

The pipe and fittings undergo quality controls within the manufacturing process to verify integrity of the product prior to shipment. These processes are documented and maintained by manufacturing.

14.4.4 Training and Evaluation Methods

Refer to the Qualification Process of this document which includes evaluation methods, evaluation criteria, job performance observations, the evaluation process and re-evaluation criteria.

Prior to qualification, the Company employee or contractor must complete the **FlexSteel Installation Certification Program**. This program includes classroom and field training by certified evaluators as part of their initial qualification. The program also addresses requirements for maintaining certification as part of their subsequent re-evaluations which includes job performance observations (audit) and an annual written exam as well other criteria. For more information, refer to document number TRN-H-9603, latest rev.

14.4.5 Re-evaluation Frequency

At a minimum, qualified personnel must be re-evaluated **every three (3) year** in order to maintain their FlexSteel Certification to perform this covered task. However, the qualified individual must perform at least 1 fitting installation within the 6-month period of time previous to re-evaluation as verified by a complete Fitting Installation Inspection Log.

14.4.6 Terminology

DIE – Tool drawn over the outside surface of the fitting to reduce the outside diameter of the ferrule.

FERRULE – External portion of the fitting (also called the “jacket”)

SWAGING – Compressing the ferrule portion of the fitting to join the fitting to the pipe or to two pieces of pipe (midlines).

14.4.7 Competencies

To be qualified on this task, an individual must be able to:

- Prior to start of operation, thoroughly identify, document and communicate to all affected personnel the potential hazards related to the task.
- Demonstrate an understanding the fitting installation procedure.
- Explain the importance of ensuring minimum bend radius of pipe is not violated during the joining/stabbing process.
- Demonstrate the correct procedure for inspecting the pipe and fitting as acceptable for installation.

- Demonstrate how to properly mark the insertion length on the pipe in accordance fitting type and size.
- Explain and demonstrate how to correctly prepare the pipe for fitting installation.
- Perform pre-start up inspection of the swage machine (8018-MSM or MSM-3000) and tooling to be used to perform the task.
- Ability to safely operate swaging equipment.
- Explain how to select the appropriate dies to perform the swaging operation.
- Demonstrate how to correctly seat dies into the swage machine and position the machine for performing the swaging process
- Demonstrate and explain how and where to record the swage pressures during the swaging process and their importance.
- Demonstrate and explain how to correctly measure for spring-back, its importance and how to record.
- Demonstrate how properly vent the fittings that require external venting hardware and where to record that the process has been performed.
- Demonstrate how to correctly complete quality documentation for the fitting installation (i.e., Fitting Installation Inspection Log) and the process for submission.

14.4.8 Prerequisites

Prior to performing this task, an individual should possess the following basic knowledge and skills:

- Be familiar with general pipeline terminology.
- Know the operating characteristics of the joining equipment.
- Know the compatibly of fitting types to pipe pressure ratings and pipe classifications in relation to intended application.
- Know the pressure and temperature requirements for the pipe.

14.4.9 Steps for Performing Task 40.00F – Joining of Pipe

STEP	ACTION	NOTES
1	For 2-in to 6-in Midline / EF fitting installations, follow Operating Procedure FLD-P-9901.	
2	For 8-in Midline / EF fitting installations follow Operating Procedure FLD-P-9907.	
3	Fitting Installation Inspection Log FLD-P-9901A latest version will be completed for each fitting installation.	**FlexSteel maintains permanent records of all FlexSteel fitting installations.**
4	Pipe Specification Sheet for pipe specifications related to maximum installation tensions and maximum temperature values are referenced as needed	

3 APPENDIX C: ALL TASKS ANALYSIS

TASK REVIEWED NO.	CATEGORY	TASK	REGULATORY REFERENCE	PERFORMED ON A FACILITY?	CONSTRUCTION TASK?	REQUIRED BY PART 192/195?	AFFECT THE INTEGRITY OF PIPELINE?	PERFORMED BY FLEXSTEEL?	COVERED TASK FOR FLEXSTEEL?	ASSIGNED TASK NAME	COVERED TASK NUMBER
1	Construction	Verify that Parts Are Suitable for Service During Pipeline Installation/Repair	192.143, 192.203, 195.422(b)	Yes	Yes	Yes	Yes	Yes	Yes	Confirm Materials Used for Pipeline Repairs	Included in 10.00F and 40.00F
2	Construction	Monitor & Inspect the Contractor's Work on the Pipeline	192.305, 195.204	Yes	Yes	Yes	Yes	No	No	N/A	N/A
3	Construction	Supervise Untrained Personnel Performing Covered Task Work	192.805 (c), 195.505 (c)	Yes	Yes	Yes	Yes	Yes	Yes	Supervise Non-Qualified Employees & Contractors	Refer to the Certification Program
4	Construction	Prepare the Pipeline for Repairs	192.605, 195.402 (a) & (b)(3), 195.403, 195.420, 195.5, 195.422(a)	Yes	Yes	Yes	Yes	Yes	Yes	Repair Pipeline Damage	10.00F
5	Construction	Launch/Receive Pipeline Pigs	192.605(a), 192.605(b)(5), 192.605(b)(6), 195.402(a), 195.402(b)(7), 195.426	Yes	Yes	No	Yes	No	No	N/A	N/A
6	Construction	Joining Pipe		Yes	Yes	Yes	Yes	Yes	Yes	Joining of Pipe	40.00F

TASK REVIEWED NO.	CATEGORY	TASK	REGULATORY REFERENCE	PERFORMED ON A FACILITY?	CONSTRUCTION TASK?	REQUIRED BY PART 192/195?	AFFECT THE INTEGRITY OF PIPELINE?	PERFORMED BY FLEXSTEEL?	COVERED TASK FOR FLEXSTEEL?	ASSIGNED TASK NAME	COVERED TASK NUMBER
7	Construction	Locate Pipelines	192.614 (c)(5), 195.442 (c)(5)	Yes	Yes	Yes	Yes	No	No	N/A	N/A
8	Construction	Witness Pipeline Crossing	192.614 (c)(6), 195.442 (c)(6)	Yes	Yes	Yes	Yes	No	No	N/A	N/A
9	Construction	Repair Pipeline Damage	192.711 (a), 192.713 (a), 195.416 (g), 195.422 (a) & (b)	Yes	Yes	Yes	Yes	Yes	Yes	Repair Pipeline Damage	10.00F
10	Construction	Install Full Encirclement Sleeves	192.713 (a)(2), 195.422 (a) & (b)	Yes	Yes	Yes	Yes	No	No	N/A	N/A
11	Construction	Install Pipeline Clock Springs	192 waived this restriction, 195.422 (a) & (b)	Yes	Yes	Yes	Yes	No	No	N/A	N/A
12	Construction	Utilize Pipeline Facility Drawings, Maps, and Alignment Sheets	192.605 (b)(3), 195.402 (c)(1)	No	No	Yes	Yes	No	No	N/A	N/A
13	Construction	Paint Above-Ground Pipeline Facilities	195.416 (i), 192.479 (a)	Yes	Yes	Yes	Yes	No	No	N/A	N/A
14	Construction	Abandon Pipelines	192.727, 195.402 (c)(10)	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A
15	Construction	Weld on the Pipeline	Subpart E 192.227. Subpart D 195.222	Yes	Yes	Yes	Yes	No	No	N/A	N/A
16	Construction	Excavate the Pipeline	192.605 (b)(9), 195.402 (c)(14)	Yes	Yes	Yes	Yes	No	No	N/A	N/A
17	Construction	Conducting One-on-One training		No	No	No	No	Yes	No	N/A	N/A

TASK REVIEWED NO.	CATEGORY	TASK	REGULATORY REFERENCE	PERFORMED ON A FACILITY?	CONSTRUCTION TASK?	REQUIRED BY PART 192/195?	AFFECT THE INTEGRITY OF PIPELINE?	PERFORMED BY FLEXSTEEL?	COVERED TASK FOR FLEXSTEEL?	ASSIGNED TASK NAME	COVERED TASK NUMBER
18	Construction	Inspect Pipeline Supports and Anchors	192.161 Supports and anchors, 192.465 External corrosion control: Monitoring, 195.110 External Loads, 195.416 External corrosion control	Yes	Yes	Yes	Yes	No	No	N/A	N/A
19	Construction	Inspect Internal Sections of Pipelines During Repairs	192.475 (b), 195.418 (d)	Yes	Yes	Yes	Yes	Yes	Yes	Inspect Internal Sections of Pipelines During Repairs	Included in 10.00F and 40.00F
20	Construction	Pressure Test the Annulus		Yes	Yes	Yes	Yes	Yes	Yes	Pressure Test the Annulus	Included in 30.00F
21	Construction	Train and Qualify Personnel in Pipeline Procedures (Qualify Trainers)	Subpart N 192.800, Subpart G 195.500	Yes	Yes	Yes	No	Yes	No	N/A	Refer to the Certification Program
22	Construction	Specify the Proper Parts and Supplies for the Pipeline	192.143, 192.203, 195.422(b)	No	Yes	Yes	Yes	Yes	Yes	Confirm Materials Used for Pipeline Repairs	Included in 10.00F and 40.00F
23	Construction	Order the Proper Parts and Supplies for the Pipeline	192.143, 192.203, 195.422 (b)	No	Yes	Yes	Yes	Yes	Yes	Confirm Materials Used for Pipeline Repairs	Included in 10.00F and 40.00F
24	Construction	Verify the Parts Received Match What Was Ordered	192.143, 192.203, 195.422 (b)	No	Yes	Yes	Yes	Yes	Yes	Confirm Materials Used for Pipeline Repairs	Included in 10.00F and 40.00F

TASK REVIEWED NO.	CATEGORY	TASK	REGULATORY REFERENCE	PERFORMED ON A FACILITY?	CONSTRUCTION TASK?	REQUIRED BY PART 192/195?	AFFECT THE INTEGRITY OF PIPELINE?	PERFORMED BY FLEXSTEEL?	COVERED TASK FOR FLEXSTEEL?	ASSIGNED TASK NAME	COVERED TASK NUMBER
25	Construction	Confirm Pipeline MAOP and MOP	192.611 (a), 192.619, 195.406	No	Yes	Yes	Yes	Yes	Yes	N/A	N/A
26	Construction	Increase the Operating Pressure to Uprate the Pipeline	Subpart K 192.553, no 195 reference	No	No	Yes	Yes	Yes	No	N/A	N/A
27	Construction	Analyze the Pipeline to Uprate its Pressure Rating	Subpart K 192.553, no 195 reference	No	No	Yes	Yes	Yes	No	N/A	N/A
28	Construction	Pressure Test the Pipeline	192 Subpart J, 195 Subpart E	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A
29	Construction	Conducting Classroom Style Training		No	No	No	No	Yes	No	N/A	Refer to Certification Program
30	Construction	Purge Equipment and Pipelines	192.629, 195.402 (c)(10), 195.422 (a) but not specific	Yes	Yes	Yes	Yes	No	No	N/A	N/A
31	Construction	Decommission Equipment	192.727, 195.402 (c)(10)	Yes	Yes	Yes	Yes	No	No	N/A	N/A
32	Construction	Handling of Pipe		Yes	Yes	No	Yes	Yes	Yes	Handling of Pipe	20.00F
33	Regulatory	Review the Qualification of Personnel Periodically to Ensure their Work Quality	Subpart N 192.800, 192.605(b)(8), Subpart G 195.500, 195.402 (c)(13), 195.402(d)(5), 195.402(e)(9)	Yes	No	Yes	No	Yes	No	N/A	Refer to Review and Quality Assurance section of the document

APPENDIX D

Deficiency Review Form

NATIONAL FUEL

DEFICIENCY REVIEW ID#

DISCOVERY: To be filled out by the supervisor or audit person discovering the deficiency.

NAME: _____ EMPLOYEE # _____

SERVICE CENTER: _____ CONTRACTOR NAME (if involved): _____

INCIDENT DATE: _____ JOB LOCATION: _____

SUPERVISOR/AUDITOR DISCOVERING THE DEFICIENCY: _____ _____

DESCRIPTION OF DEFICIENCY: _____

COVERED TASK(S) INVOLVED/SUSPENDED UNTIL THE DEFICIENCY MEETING:
_____

REVIEW: Immediate action taken by local management

SERVICE CENTER NOTIFIED: NAME: _____ DATE: _____

QUALITY ASSURANCE DEPT. NOTIFIED OF COVERED TASK(S) SUSPENDED: YES_____

CONTRACTOR NOTIFIED: _____ DATE: _____

RESOLUTION: Recommended action by the review team.

PROCEDURES REVIEWED AND VERIFIED: YES_____ NO_____

EMPLOYEE WAS DEFICIENT AND COVERED TASK(S) REVOKED: YES_____ NO_____

EXPLANATION: _____

ADDITIONAL TASKS REVOKED: TASK #_____

RESOLUTION: _____

APPROVED BY Manager (or higher): _____ DATE: _____

PLEASE RETURN COMPLETED COPY TO: Quality Assurance CLSC (Brendan Lougheed)

DEFICIENCY REVIEW FORM INSTRUCTIONS

As part of National Fuel's Operator Qualification Plan, an individual must be evaluated prior to continuing the performance of a covered task for the following:

1. National Fuel has reason to believe that the individual's performance of a covered task contributed to an incident as defined in Title 49 CFR Part 191, Section 191.3.

2. National Fuel has reason to believe the individual is no longer qualified to perform a covered task (Reasons for this belief may include, but are not limited to; observable loss of the individual's motor skills, prolonged absence, or other demonstrable indications that the individual may no longer be able to perform the task).

3. An individual's performance has been observed or reported as inadequate.

The Deficiency Review process and form has been established to comply with the above listed requirements of the Plan.

Any Supervisor initiating a Deficiency Review shall complete the "DISCOVERY" section of the Deficiency Review form then contact Brendan Lougheed (Deficiency Review Team Coordinator) to discuss the matter.

Upon receipt, a hearing will be scheduled at which time the Team will review the matter and decide upon final corrective actions.

Upon completion of the hearing, all actions taken will be documented on the form. The document will then be returned to the local Manager for a final signature and date, indicating acknowledgement and agreement with the Team's recommendations. The Deficiency Review form shall then in turn be sent back to the Coordinator for filing. The Quality Assurance Department will be responsible for making sure the recommended resolution steps are completed.

Rev. 11/20

APPENDIX E

National Fuel Management of Change Procedures
Dates of Review

11.0 Management of Change for Company and Contractor Personnel

Plan for Management of Changes (Procedures, Tools, Standards) For NFG Personnel and Contractors.

•Periodic procedure updates are processed by the Engineering Department Operational Compliance Program Coordinator.

•The Engineering Department distributes updates and training modules as necessary using web based Greenlight training program or by email to the respective Company and Contractor management.

•Procedure updates are additionally available for employees at the Review/ Revision tab at the National Fuel Gas Manual Site (https://nfg.vlpmanuals.com)

•National Fuel Gas Distribution Operating Procedures also contain the MOC process of procedural updates

•Contractor Single Points of Contacts (SPOC) complete a Greenlight survey acknowledging the receipt and are responsible for distributing and training their employees on the procedural updates.

11.0 Dates of Review

- Initial Release Date 9/13/2019
- 10/15/19 Annual Review conducted by Gary Winner via webinar, memo documented.
- November 19, 2020 and December 17, 2020 Annual Review conducted by Gary Winner & Earl Springborn via Zoom, memo documented.
- August 25, 2021 Annual Review conducted by Tom Lederman via Zoom, memo documented

APPENDIX B
EXAMPLE OUTREACH LETTER

National Fuel

Engineering Services

January 1, 2022

Town of XXX
Supervisor

Re: Highway & Municipal Construction Projects

Dear Sir or Madam:

PLEASE ADVISE OF PUBLIC IMPROVEMENT PROJECTS IN YOUR JURISDICTION.

National Fuel Gas is in the process of planning pipeline replacement projects for 2022-2023. To plan for replacements resulting from public improvement projects, we are asking that you provide us information on projects planned in your jurisdiction. It is important that we receive information on projects involving:

- Grade changes within road right-of-way
- Drainage
- Full depth road construction
- Paving and restoration

These projects may involve replacement of our facilities. When our facilities are involved, we usually require 6 months advance notice to design, bid, and construct. When environmental permitting is required, it may substantially prolong the project schedule.

Please provide a preliminary list of your planned projects, anticipated scope, and estimated start dates to Jason Fleek, Municipal Project Coordinator. We understand that many times projects are delayed and others are added based on funding and area needs. As your plans develop, please send us digital copies of construction designs so that we may evaluate our involvement and identify any conflicts. When Mill and Pave projects do not involve a direct conflict, National Fuel may be able to avoid future pavement cuts by replacing aging facilities prior to resurfacing.

Our goal is to coordinate pipeline replacement projects with municipal projects so that we may relocate our facilities in advance of your construction when warranted. The result will be fewer delays and conflicts for your contractors and will help provide safe and uninterrupted gas service to your community.

If you are planning a pre-design survey, submit a One-Call design ticket, and provide project information in the remarks section. Identifying gas line locations on your plans can be extremely helpful to your contractors in improving safety and avoiding charges for damaging underground gas facilities.

As an additional resource to utilize early in design of any construction projects, the Pipeline and Hazardous Materials Safety Administration (PHMSA) collects data from transmission pipeline operators and displays GIS pipeline information for transmission facilities **ONLY** on their NPMS Public Viewer. When transmission facilities are involved, National Fuel has additional requirements that need to be considered that may impact project scheduling and costs. This GIS database can be found at https://pvnpms.phmsa.dot.gov/PublicViewer/ and is a free tool to use to assist in identifying if transmission facilities exist near your project limits during the design phase. Please note that this is **NOT** to be considered as a substitute for the 811-call procedure and does **NOT** identify non-

transmission facilities.

While highway infrastructure, municipal utilities and pipelines can safely coexist, it is extremely important to thoroughly consider natural gas pipelines when developing building or construction plans. Please visit National Fuel's Pipeline Safety website at https://www.nationalfuel.com/pipeline-storage/about-pipeline/pipeline-safety/ for information on designing and constructing facilities near natural gas pipelines, including;

- The Pipeline and Informed Planning Alliance (PIPA) recommended practices for property developers and planning boards on building safely near natural gas pipelines.
- National Fuel's encroachment manuals, which explain right-of-way agreements, encroachment agreements, construction requirements and other valuable information for planners and developers looking to begin the design phase.

Prior to construction, it is the Excavator's responsibility to contact the One-Call Center (Call 811) which in turn notifies National Fuel of planned excavation in proximity to our natural gas pipelines and other facilities. This enables us to mark the location of those facilities in advance of excavation.

To ensure worker and public safety during construction, National Fuel is providing guidance for working around gas facilities in this correspondence. Enclosed are a "Summary of Excavator Responsibilities" and a "Typical Gas Line Crossing/Open Trench Detail." For excavation and safety training materials, please refer to the National Fuel Pipeline Safety webpage for additional information and links to training materials on excavation safety, including the Dig Safely New York website at https://www.digsafelynewyork.com/safety-training/safety-videos for their library of safety videos. We urge you to share this information with your contractors and inspectors by including this information in your bid documents and construction specifications. We also ask that you encourage your inspectors to enforce proper excavation practices with your contractors during construction.

Enforcing proper excavation practices around gas pipelines is especially important in light of an incident in January of 2011, in Horseheads NY. There, improper backfill procedures following the installation of municipal sewer and water facilities caused a pre-existing gas pipeline to crack. The resulting leak ignited, resulting in a fatality and two injuries.

In another case, a deadly residential home explosion took the life of a child two decades after crews installed a sewer line using improper excavation procedures. In 2016, an incident occurred in Dallas, TX that involved 3-separate residential fires and/or explosions during a three-day period. The cause was found to be a leak resulting from a crack of a 2" steel main installed in 1946. The cracked resulted from a dent caused by a sewer replacement project in 1995. <u>The guidance attached to this letter is designed to improve excavation practices so that the circumstances that led to these incidents can be avoided.</u>

Please contact Jason Fleek regarding project coordination.

Sincerely,

Matt Wisotzky
Engineering Manager
Wisotzkym@natfuel.com
(814) 871-8605 Ext. 4605

Jason Fleek
Municipal Project Coordinator
Fleekj@natfuel.com
(814) 871-8633 Ext. 4633

Summary of Excavator Responsibilities

See One-Call regulations for details (www.Call811.com).

1. Notify the One-Call Center (**Call 811**) in accordance with regulations. In Pennsylvania, notification must be made not less than 3 nor more than 10 business days prior to commencing excavation work, and in New York this is 2 to 10 full business days prior to starting any work that might be considered an excavation or demolition. Postponing the job will likely require re-notification to the One-Call Center. Furthermore, if the job site becomes inactive, call to have the specific work area remarked prior to restarting the work.

2. Designating the dig site in white will aid in the timely marking of underground facilities. Pre-marking proposed facilities in white may be required.

3. If work is to be performed at multiple sites or over a large area, take reasonable steps to work with facility owners so that they may locate their facilities. Limit the size of each ticket. Using reasonable start dates for individual tickets facilitates getting the proper areas marked when needed.

4. In Pennsylvania, if a project involves more work than can be described on a single locate request (i.e. 1,000ft in length or intersection to intersection, whichever is greater) it shall be called in as a complex project notification.

5. After commencement of excavation or demolition work, the excavator is responsible for protecting and preserving the staking, or marking until excavation or demolition work in the area is complete. If necessary, call the One-Call Center to have the lines remarked.

6. Where an underground facility has been staked, marked or otherwise designated, verify the precise location, type, size, direction of run and depth of the underground facility. Use prudent techniques such as vacuum excavation or hand-dug test holes, to verify the precise location of facilities. It is best to verify prior to excavating in the general area, but verification must be done prior to excavating in the tolerance zone. Once the precise location of underground facilities have been verified, continue to exercise due care within the tolerance zone. Call the facility owner if a marked facility cannot be found or the One-Call center if an unmarked facility is discovered.

7. Inform each equipment operator of the information obtained from facility owners. Plan the excavation or demolition to avoid damage to or minimize interference with a facility owner's facilities in the construction area.

8. Consult the facility owner if:

   a. Excavation or demolition work requires temporary or permanent interruption of a facility owner's service. Such interruption must be coordinated with the affected facility owner in all cases.

   b. A facility is exposed or undermined. The excavator must provide support and mechanical protection for facility owner's lines at the construction site during excavation or demolition work, including during backfilling operations.

9. Report immediately to the facility owner any break, leak, dent, gouge, or other damage to the facility owner's lines made or discovered during the course of excavation or demolition work. Including, damage to pipeline coatings, locating wire and cables for cathodic protection.

10. In the event of an emergency involving danger to life, health or property as a result of damage to an underground facility containing gas or liquid petroleum products or as a result of an electrical short or escape of gas or hazardous liquids, the excavator shall:

   a. Proceed to evacuate his or her employees and all other endangered persons from the immediate vicinity to the best of his or her ability. Do not use any mechanical or electrical equipment (including cell-phones) in the area.

   b. Immediately contact 911 and the Facility Owner, reporting the exact location, nature of the emergency and type of underground facility damaged.

THE NATIONAL FUEL GAS COMPANY EMERGENCY NUMBER IS:
1-800-444-3130
24 hours/day, 7 days/week

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Petition of National Fuel Gas Distribution Corporation For Approval Of A Long-Term Infrastructure Improvement Plan For The Period January 1, 2023 Through December 31, 2027	:	Docket No. P-2022-_____

VERIFICATION

I, Brian Welsch, certify that I am the assistant vice president of National Fuel Gas Distribution Corporation, and that in this capacity I am authorized to, and do make this Verification on their behalf, that the facts set forth in the foregoing document are based upon my reasonable investigation thereof and/or were provided to me by other individuals and, as such, are true and correct to the best of my knowledge, information and belief, and that National Fuel Gas Distribution Corporation expects to be able to prove the same at any hearing that may be held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unsworn falsification to authorities.

Date: September 2, 2022

Brian Welsch
Assistant Vice President
National Fuel Gas Distribution Corporation