

**U.S. DEPARTMENT OF TRANSPORTATION**  
**PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**  
**FINAL ENVIRONMENTAL ASSESSMENT**  
**and**  
**FINDING OF NO SIGNIFICANT IMPACT**

**Special Permit Information:**

<b>Docket Number:</b>	PHMSA-2017-0090
<b>Requested By:</b>	National Fuel Gas Supply Corporation
<b>Operator ID#:</b>	13063
<b>Original Date Requested:</b>	July 28, 2017
<b>Original Issuance Date:</b>	August 27, 2019
<b>Effective Dates:</b>	August 27, 2019 to August 26, 2029
<b>Code Sections:</b>	49 CFR 192.53, 192.55, 192.105, 192.107, 192.109, 192.111, 192.113, 192.144, 192.149, 192.150, 192.327, 192.463, and 192.619

**I. Background**

The National Environmental Policy Act (NEPA), 42 United States Code (USC) 4321 – 4375, Council on Environmental Quality regulations, 40 Code of Federal Regulations (CFR) 1500-1508, and U.S. Department of Transportation (DOT) Order 5610.1C, requires the Pipeline and Hazardous Materials Safety Administration (PHMSA)<sup>1</sup> to analyze a selected action to determine whether the action will have a significant impact on the human environment. PHMSA analyzes special permit requests for potential risks to public safety and the environment that could result from our decision to grant, grant with additional conditions, or deny the request. As part of this analysis, PHMSA evaluates whether a special permit would impact the likelihood or consequence of a pipeline failure as compared to the operation of the pipeline in full compliance with the Pipeline Safety Regulations. PHMSA developed this assessment to determine what effects, if any, our decision would have on the environment.

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<sup>1</sup> Throughout this FEA, the usage of “PHMSA” or “PHMSA OPS” means the U.S. Department of Transportation’s Pipeline and Hazardous Materials Safety Administration Office of Pipeline Safety.

Pursuant to 49 U.S.C. 60118(c) and 49 CFR 190.341, PHMSA may only grant special permit requests that are not inconsistent with pipeline safety. PHMSA will impose conditions in the special permit if we conclude they are necessary for safety, environmental protection, or are otherwise in the public interest. If PHMSA determines that a special permit would be inconsistent with pipeline safety or is not justified, the application will be denied.

The purpose of this final environmental assessment (FEA) is to comply with the National Environmental Policy Act (NEPA) for the National Fuel Gas Supply Corporation (NFG) application for a special permit to waive requirements of 49 CFR 192.53, 192.55, 192.105, 192.107, 192.109, 192.111, 192.113, 192.144, 192.149, 192.150, 192.327, 192.463, and 192.619. The special permit request described herein is related to, but distinct from the Federal Energy Regulatory Commission (FERC) decision making process for a certificate of public convenience and necessity issued by the FERC on March 15, 2018, in Docket No. CP17-74-000. The PHMSA does not have pipeline siting or construction approval authority, but PHMSA's Pipeline Safety Regulations impose certain safety requirements that will apply to the use of FlexSteel pipe that will be inserted into the existing 12-inch diameter<sup>2</sup>, 1950's vintage steel natural gas pipeline. The requirements for special permit applications to PHMSA to request waiver from one or more safety regulations are described at 49 CFR 190.341.

## **II. Introduction**

Pursuant to 49 U.S.C. 60118(b) and 49 CFR 190.341, NFG submitted a special permit petition to PHMSA on July 28, 2017, requesting that it waive the requirements of 49 CFR 192.53, 192.55, 192.105, 192.107, 192.109, 192.111, 192.113, 192.144, 192.149, 192.150, 192.327, 192.463, and 192.619. The *special permit segment* includes 5.8 miles of 6-inch diameter FlexSteel pipe and components located in class 1 and 2 locations by implementing certain Operations and Maintenance (O&M) procedures and preventive and mitigative measures. The *special permit segment* is on the FM120 Pipeline located in McKean and Elk Counties, Pennsylvania from Mile Post 0.0 to Mile Post 5.84.

## **III. Regulatory Background**

This special permit application request seeks a special permit (waiver) to use flexible pipe in a

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<sup>2</sup> 12-inch diameter pipe has an outside diameter of 12.75 inches.

gas transmission pipeline that operates at an MAOP of 720 pounds per square inch gauge (psig).  
NFG has requested a special permit (waiver) of the following 49 CFR 192 sections:

<b>Section</b>	<b>Section Title</b>	<b>Discussion / Rationale</b>
192.53	General	Sub-paragraph (c) does not recognize flexible steel pipe in meeting the requirements of the Subpart.
192.55	Steel Pipe	(a)(1) There is no listed specification for flexible steel pipe. (a)(2) Qualification requirements are specific to rigid steel pipe and do not apply to flexible steel.
192.105	Design formula for steel pipe	This section does not provide a design formula for flexible steel pipe.
192.107	Yield strength (S) for steel pipe	This section does not provide a design formula for flexible steel pipe and fittings.
192.109	Nominal wall thickness (t) for steel pipe	This section does not address the steel strip reinforcement used in flexible steel pipe.
192.111	Design factor (F) for steel pipe	This section does not provide design factors for flexible steel pipe.
192.113	Longitudinal joint factor (E) for steel pipe	This section does not apply to flexible steel pipe.
192.144	Qualifying metallic components	There is no listed specification for the swaged steel connectors to use with the FlexSteel pipe system.
192.149	Standard fittings	There is no listed specification for the FlexSteel connectors.
192.150	Passage of internal inspection devices	There is no need or value in running an ILI tool since the internal wall of the FlexSteel pipe is thermoplastic.
192.327	Cover	The existing 12-inch diameter steel pipeline will be used as a casing for the new 6-inch FlexSteel line. Given that the existing line was installed in the mid-1950's, there are some areas with less than 30-inches to 36-inches of cover. However, the existing steel pipe, will serve as a casing for the FlexSteel line, thereby affording it an additional level of protection from 3 <sup>rd</sup> party damage and from anticipated wheel loads.
192.463	External corrosion control: Cathodic Protection	This section envisions externally high-density polyethylene (HDPE) lined steel materials. NFG will insert FlexSteel pipe into the steel coated or bare pipe and does not contemplate existing 12-inch diameter pipeline, which will be cleaned prior to insertion (See section VIII.5.a.v for pipeline cleaning procedure). NFG will direct bury and install a cathodic protection test station and anode in soil at every FlexSteel fitting outside the 12-inch diameter casing.
192.619	What is the maximum allowable operating pressure for steel or plastic pipelines	This section does not provide a design formula for flexible steel pipe.

## IV. Purpose and Need

This special permit is part of a modernization project which will allow NFG to use FlexSteel pipe to replace a 12-inch diameter, 1950's vintage bare steel pipeline, known as the FM120 Pipeline. The new 6-inch diameter FlexSteel will be inserted through the existing 12-inch diameter pipeline, which would require significant maintenance and repair to return to pressurized natural gas service. Use of FlexSteel will significantly reduce excavation, earth disturbance, and other activities associated with removal of the existing 12-inch steel pipeline and installation of a new steel pipeline into the right of way.

This special permit with conditions implemented by NFG will allow the use of FlexSteel pipe for this modernization project. This special permit will benefit NFG by allowing the replacement of approximately 5.84 miles of FM120 Pipeline (1950s vintage 12-inch diameter bare steel natural gas pipeline) through insertion of 6-inch FlexSteel into the existing 5.84 miles of FM120 bare steel pipeline.<sup>3</sup> NFG states that replacement will enhance the reliability and safety of NFG's FM120 Pipeline for the public, its shipper's distribution markets, storage and local production, and users of the state forest where the pipeline runs. Upon completion, NFG will continue to provide the transportation services performed previously by the planned abandoned facilities, offering better connectivity for storage and transportation services. Furthermore, this special permit will benefit the public since much of the land is public land (Elk State Forest), the insertion process will greatly reduce the earth disturbance and amount of time required to complete the project as compared to the standard direct bury, or open trench type of construction.

FlexSteel is a type of flexible steel pipeline, which is not currently in use in PHMSA-regulated interstate gas transmission pipelines.

## V. Site Description

The new pipeline is primarily located within Elk State Forest in McKean and Elk Counties in Northwest Pennsylvania, which is dominated by woodlots and oil and natural gas facilities. As seen in Attachment 1 – FM120 Pipeline Overview Map, approximately 3,000-feet of this 30,624-

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<sup>3</sup> The *special permit segment* is defined as 5.84 miles of the FM120 Pipeline which is being replaced with a 6-inch diameter FlexSteel pipe inserted into an existing 12-inch diameter pipeline. The *special permit segment* is in McKean and Elk counties, Pennsylvania. The *special permit segment* MAOP will be 720 psig.

foot (5.84 miles) special permit area has scattered seasonal hunting camps and residences adjacent to the existing pipeline right-of-way (ROW). The remaining segments of the pipeline are located on private land. Approximately 4.83 miles (83 percent) of the pipeline is located within the Elk State Forest. No other state or national forest lands are traversed. The *special permit segment* (Project) crosses the Elk State Forest and private lands.

The *special permit segment* will be constructed of 6-inch diameter FlexSteel pipe, which is flexible pipe with a steel core. The FlexSteel pipe will be inserted into an existing 12-inch diameter, 1950's vintage bare steel pipeline, known as FM120 Pipeline. The new 6-inch diameter FlexSteel pipe will be inserted through the existing 12-inch diameter steel pipeline. This 5.84-mile pipeline will continue to be used to transport dry transmission quality natural gas located in McKean and Elk Counties, Pennsylvania, as is the current steel pipeline. The *special permit segment* area is sparsely populated with the closest building intended for human occupancy located twenty-eight (28) feet away in a short section of Class 2 located near Pennsylvania State Route 146. The *special permit segment* area does not have nearby places of public assembly. This pipeline segment does not have any 49 CFR Part 192, subpart O, high consequence areas (HCAs) within its potential impact radius (PIR). The 6-inch pipeline will have a maximum allowable operating pressure (MAOP) of 720 psig. The 6-inch diameter pipeline PIR is approximately 130.5 feet.

## **VI. Special Permit Segment**

On condition that NFG complies with the terms and conditions set forth below, the permit will waive compliance from 49 CFR 192.53, 192.55, 192.105, 192.107, 192.109, 192.111, 192.113, 192.144, 192.149, 192.150, 192.327, 192.463, and 192.619 for the *special permit segment*. The *special permit segment* is defined as NFG's FM120 Pipeline from Survey Station 0+00 to 306+96 (5.84 miles) located in McKean and Elk Counties, Pennsylvania (PA). The *special permit segment* will include 6-inch diameter FlexSteel pipe installed within an existing 12-inch diameter bare steel pipeline.

The special permit will allow NFG to operate the 6-inch diameter FlexSteel pipe at an MAOP of 720 psig for the FM120 Pipeline. The special permit will not allow the *special permit segment* to extend into any additional Class 2 or 3 locations or high consequence areas (HCAs).

PHMSA proposes to grant this special permit based on the findings set forth in this document with NFG implementing the special permit, which can be read in its entirety in Docket No. PHMSA- 2017-0090 in the Federal Docket Management System (FDMS) located on the internet at [www.regulations.gov](http://www.regulations.gov).

## **VII. Alternatives**

- **Alternative 1: “Do Nothing/No Action” Alternative**

If this special permit application were denied and the No Action Alternative were selected, NFG would need to comply fully with 49 CFR Part 192. NFG indicates that if its special permit application was denied, it would perform a direct bury of a new 6-inch diameter steel pipeline, which would be required to fully comply with 49 CFR Part 192. The open-cut direct bury method for construction of a new pipeline would involve grading a 40 to 50-foot-wide right of way and excavation of soil material along the entire route of FM120 Pipeline including thirty-three (33) wetlands, twelve (12) streams, and other sensitive habitat. This method would increase potential for compaction, erosion, and revegetation concerns. In contrast, the insertion method will be significantly less invasive than the conventional open-cut method and require less soil disturbances. The insertion method will require an anticipated total earth disturbance acreage of 13.1 acres whereas the conventional open-cut ditching method would require 52 acres, excluding staging areas.

- **Alternative 2: Selected Alternative**

PHMSA proposes to permit NFG to use a composite and flexible steel pipeline product known as FlexSteel, which has a high-density polyethylene (HDPE) inner and outer layer with a helically wound steel core. FlexSteel pipe can be spooled and is less costly to manufacture, transport, install, and operate than traditional steel pipelines.

Flexible steel pipelines are not contemplated by the regulations in 49 CFR Part 192. In considering this special permit application, PHMSA had to analyze the design, materials, installation, and maintenance of FlexSteel pipe.

## **VIII. Overview of the Special Permit Conditions:**

To ensure an equivalent level of safety as full compliance with Part 192, PHMSA proposes the

following summarized special permit conditions (Conditions 1 through 13 and Limitations (14) below):

**1) Under the special permit, NFG must design, operate, and maintain the pipeline in accordance with the following:**

- a) For purposes of the special permit, the "*special permit segment*," i.e., the "Project," is defined as the FlexSteel pipe, fittings, monitoring devices, and related facilities to be installed within the 5.84-mile section of FM120 Pipeline. Other "new construction" will consist of those installations outside of the 5.84 miles of the *special permit segment* and is not included in this special permit.
- b) The pipeline must operate at or below a maximum allowable operating pressure (MAOP) of 720 pounds per square inch gauge (psig). This MAOP has been established based on the pipeline facilities that the special permit section is connected to i.e. Line K, an interstate pipeline that spans between northern Pennsylvania and the Buffalo area and Line KL, a pipeline that spans between Line K and FM120 Pipeline.
- c) The pipeline must operate at or below a design factor of 0.24 of the stated product burst rating of 3,000 psig, which is 48% of the product's 1,500 psig manufacture pressure rating, for all class locations and road crossings within the *special permit segment*.
  - i) Due to the nature of the FlexSteel pipe installation method, all road crossings must be cased with steel pipe.
  - ii) Due to the composite design of FlexSteel pipe, Barlow's formula in 49 CFR 192.105 cannot be used to determine the pressure rating of this material. Per API 15S, Second Edition, Section 5.2.5, the maximum pressure rating for a product is equal to the product's calculated minimum burst pressure multiplied by a maximum design factor of 0.5. In this case, the 6-inch diameter FlexSteel pipe has a minimum burst pressure of 3,000 psig, which results in a maximum pressure rating of 1,500 psig.<sup>4</sup>

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<sup>4</sup> The 6-inch diameter FlexSteel pipe will be 5.60-inch inside diameter and 7.05-inch outside diameter with a rating of 1,500 psig, empty weight of 12.9 pounds per foot, maximum pipe operating temperature of 150 degrees Fahrenheit (°F), and maximum installation tension of 30,000 pounds.

- d) NFG must conduct quarterly patrols and instrumented leakage surveys at a maximum of 4-½ months, but at least four times each calendar year in accordance with the requirements in 49 CFR 192.705, 192.706 and 192.935(d)(3).
- e) Should a class location increase outside of the *special permit segment* occur, NFG must notify PHMSA of the class location changes or a new high consequence area (HCA).
  - i) This special permit is not applicable for Class 3 and 4 locations and HCAs or for a class 2 to 3 class location bump as described in 49 CFR 192.611.
  - ii) The special permit conditions must be reviewed for modifications to maintain safety. If a new building intended for human occupancy is identified within 197 feet (1.5 times PIR) of the *special permit segment* and that building causes the Class 1 location to become a Class 2 location or causes the present Class 2 location to extend in length along the *special permit segment*, NFG will be required to remove and replace that portion of FlexSteel pipe with 49 CFR Part 192-compliant steel line pipe.
- f) NFG must treat the *special permit segment* as if the entire segment is a covered segment in an HCA and must develop and follow an integrity management program in accordance with the requirements of 49 CFR Part 192, Subpart O (except as waived or modified herein) applicable to plastic transmission pipelines including the following sections (49 CFR 192.901, 192.917(b) through (e), 192.921(a)(2) or (a)(4), 192.935, 192.937(c)(2) or (c)(4), and 192.939(b)). This includes, but not limited to, risk assessments, regular patrolling, participation in the national one call system, installation of remote controlled valves, and a pressure test re-assessment every seven (7) years, not to exceed 90 months, at a minimum pressure of 1.5 times MAOP for 24 continuous hours.
- g) NFG must ensure that both its Integrity Management (IM) Procedures and its O&M Procedures are modified to incorporate the conditions required by this special permit for the *special permit segment*. NFG must make these portions of its IM Procedures and O&M Procedures available to PHMSA upon request.

## 2) General and Design Requirements



- a) Branches: NFG must not tap, branch, or split the *special permit segment* FlexSteel pipe without the use of the appropriate FlexSteel manufactured fittings for the specified application.

### 3) Material and Testing Requirements

- a) Pipe Layers: NFG must install line pipe in the *special permit segment* that is comprised of high density polyethylene (HDPE) PE47 10 inner and outer layers made from natural gas pipe grade material, which meet the material requirements of API 15S, Second Edition. All FlexSteel components must be manufactured and tested in accordance with API 15S, Second Edition.
- b) Regrind and Rework of Polymeric Materials: Materials used in the manufacture of the pipe installed within the *special permit segment*, during construction or in future repairs or replacement, may not contain any regrind or rework material.
- c) Outdoor Pipe Storage: NFG must comply with API 15S, Second Edition requirements for outdoor storage and ultraviolet radiation exposure of polyethylene (PE) pipe for all FlexSteel pipe materials used in the *special permit segment*. NFG must document compliance with API 15S, Second Edition in its Material Specifications and O&M Procedures. NFG must obtain mechanical and chemical properties test reports that certify the steel by heat used in manufacturing the FlexSteel pipe.
- d) Factory Pressure Testing: All pipe used in the *special permit segment* must be factory pressure tested to a minimum of 1.3 times MAOP for a minimum of one (1) hour. NFG must make available pressure test records demonstrating that all *special permit segment* pipe was factory pressure tested. Such records must be traceable to all line pipe repair pipe or replacement pipe used within the *special permit segment* and must include: pressure test reports, pressure testing parameters (pressure, time, procedure and/or standard number, date, etc. and test acceptance parameters), and pressure testing recorders with current calibration records for pressure test recoding equipment. NFG must provide a certification from the pipe manufacturer that the tests were completed and that all pipe was visually checked during the pressure tests for leaks. NFG must make available all pressure test records to the Director, PHMSA Eastern Region prior to operation of the *special permit segment* upon request.
- e) Long-Term Integrity: In designing the pipeline, NFG must consider and plan for all pipeline risk factors, including, but not limited to: pressure and temperature cycling;

performance of multilayer composite pipe in subzero temperatures, and repairs under a range of ambient conditions; long term performance of composite material and mechanical fittings; cathodic protection of metallic appurtenances; coating performance; long term performance of pipe; risk migration through damage inner pipe wall; and methods for assessment of buried or excavated pipe.

- i) NFG must schedule and perform five (5) inspections during which non-destructive and destructive testing must be performed on the pipe material after installation. Nondestructive testing must focus on the composition and degradation of the pipe material and destructive testing must include a hydrotest to burst pressure. NFG must perform these inspections and tests at a maximum of 1, 2.5, 5, 7.5 and 10-year intervals after installation.
- ii) A section of pipe no less than 200 feet must be installed in such a way that simulates the condition of the *special permit segment* (i.e. cased) in the immediate vicinity of the operating pipeline at Mile Post 0 on NFG's property, see Attachment 1- FM120 Pipeline Overview Map. This pipe segment must have 20 feet removed during the intervals defined in (i) to be evaluated, including destructive testing. The results must be made available to the Director, PHMSA Eastern Region.
  1. Each removed segment must be disassembled and visually inspected for any indications of corrosion;
  2. FlexSteel's internal and external HDPE layers must be destructively tested per ASTM D638-03 (Standard Test Method for Tensile Properties of Plastics) 2003 edition for yield strength, ultimate strength, and elongation. These properties must be evaluated based on the requirements of ASTM D2513-12ae1 (Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings) April 1, 2012 edition, Section 5.12.2.1 (Elongation) Table 1, and ASTM D3550-12e1 (Standard Specification for Polyethylene Plastics Pipe and Fittings Materials) April 1, 2012 edition, Table 1 (Yield Strength).
  3. Flex Steel's inner core must be destructively tested per ASTM A370 for yield strength, ultimate strength and elongation and per ASTM

A751 for chemical composition. These results must be evaluated based on the requirements of ASTM A109-16 (Standard Specification for Steel, Strip, Carbon (0.25 Maximum Percent), Cold Rolled) 2016 Edition Table 2 (Chemical Properties). The results of the mechanical properties testing shall be per the manufacturer's requirement for as-received steel strip materials. These mechanical property values exceed the values listed in ASTM A109. Acceptance criteria is available for review upon request, but for trade secret reasons, it is requested that the criteria not be listed in the docket folder.

4. A section of FlexSteel pipe must be burst tested per the requirements of API 15S, Second Edition, Section 5.2.3.5.

iii) Perform removal, replacement, and installation of pipe and fittings, and other actions related to the removal of test segments, in accordance with the requirements of this special permit.

iv) NFG must report the results of the inspections and tests to the Director, PHMSA Eastern Region within 60 days of completion of testing.

#### **4) Construction Operator Qualifications**

a) If the performance of a construction task associated with construction or repair of the *special permit segment* could affect the integrity of the segment, NFG must treat that task as a "covered task" notwithstanding the definition in 49 CFR 192.801(b), and must implement the requirements of subpart N. NFG's construction operator qualification (COQ) procedures, training program and qualification tests must include detailed information on all construction-related tasks as a covered task.

b) NFG must develop and implement a COQ plan that specifically relates to construction activities for the *special permit segment*. The purpose of the plan must be to ensure construction personnel and operations personnel are trained. The COQ plan must be followed throughout the construction phase with respect to the following: pipe inspection, hauling and stringing, appurtenance inspection, field jointing methods, installation of appurtenances, pull through of the pipeline, padding and backfilling as required, hydrostatic testing, pipe repairs made from hydrostatic testing, dewatering and purging, and inspection of work (i.e. trenching, excavating, etc.). These tasks can affect the integrity of the *special permit segment* and must be

treated as “covered tasks.” The individuals driving the pipe trucks to the pipeline right-of-way will not need to be COQ qualified, unless they are responsible for the pipe unloading.

- c) NFG must also treat in the following *special permit segment* tasks as covered COQ “covered tasks”, such tasks include: right-of-way soil stability determination, surveying, locating foreign lines, one call notifications, ditching or excavation, cathodic protection (CP) system surveys, mitigation, and installation, anomaly evaluations and repairs, right of way clean up (including installation of line markers), SCADA control point installation and verification, gas quality monitoring, and quality assurance monitoring.
- d) NFG must have FlexSteel personnel on-site when initial pipeline installation is conducted.
  - i) NFG must have FlexSteel certified joining personnel onsite installing all FlexSteel couplings.
- e) NFG must make available its COQ plan to the Director, PHMSA Eastern Region 30-days prior to beginning construction.

## **5) Excavation, Pipe Cover, and Damage Prevention**

- a) Pipe - Inspection for Damage:
  - i) NFG must make available its inspection training and qualification plan to the Director, PHMSA Eastern Region 30 days prior to the start of construction. This plan must define the requirements and training necessary to inspect and evaluate damage to FlexSteel pipe and fittings. In addition, NFG must have FlexSteel employees on site during any insertion activities to not only to advise on any construction related activities but to assist in inspection, evaluation, and repair of any damage indications, should they be encountered.
  - ii) NFG must inspect the pipeline during offloading at the storage yard, offloading on location, during uncoiling, placement into the ditch, backfill, and right-of-way grading and clean up.
  - iii) NFG must certify and document all inspections with date, time, pipeline station, and pipe spool number.

- iv) NFG must inspect the leading 25 feet of pull-through pipe for damage, replacing damaged pipe. All indications of pipe damage must be evaluated and replaced or repaired as follows:
- (1) Option 1 - Minimal Damage to the Pipe Shield: Gouges or scrapes that exceed 0.1181 inches or 3 millimeters (mm) in depth must be repaired in accordance with Option 2 or 3 below or replaced with new pipe.
  - (2) Option 2 - Moderate Damage to the Pipe Shield with No Steel Strip Exposed: gouges more than the depth specifications listed above must be repaired with either a pipe clamp or a pipe repair system consisting of polyethylene/butyl rubber pipeline tape, heat-activated wrap, or replaced with new pipe. Prior to applying the clamp or wrap, gouges must be smoothed and blended with an appropriate grit sand paper or equivalent material. For this repair option to be used the pipe must contain: no visible evidence of exposed steel layers, outer sheath damage must be less than six (6) square inches, and the outer sheath damage cannot be more than halfway around the pipe.
  - (3) Option 3 - Extensive Damage to the Pipe Shield: When the steel layer has become exposed or the degree of outer sheath damage exceeds the parameters specified in Option 2 above, the damaged section of the pipe must be cut out and a midline connection installed.
- v) During the pre-installation, the operator must develop procedures for internally cleaning the existing 12-inch diameter pipe (future casing pipe) to remove liquids and debris and to inspect the casing pipe for any hazards that could damage the FlexSteel pipe during the casing pull through.
- vi) Prior to insertion, each insertion section of the *special permit segment* must be pigged with a poly-disc pig to verify the cleanness of the section. If any liquids are found as a result of this run, additional swab pig runs must be performed until no visible liquids are found.
- vii) During the insertion process, the tensile force on the FlexSteel pipe shall be monitored by use of a calibrated dynamometer, calibrated within six (6)

months of use. This tensile force shall be limited to 24,000 pounds which is 80% of FlexSteel's rating of 30,000 pounds.

- b) NFG must develop and implement O&M Procedures and/or Construction Specifications to remove and replace any FlexSteel pipe with the following conditions:
- i) Cuts, scrapes, abrasions, or gouges that at any place exceeds the criteria for wall damage defined in Condition 5(a).
  - ii) Discolorations of the outer HDPE layer that may indicate material degradation or lack of homogeneity;
  - iii) All FlexSteel pipe must be newly produced after the grant of this special permit and not obtained from inventory. The outside HDPE layer is PE 4710 with 2% carbon black content, which has a 50 year UV resistance per ASTM D3350.<sup>5</sup>
  - iv) Any section of FlexSteel pipe that appears to contain cracking or crazing may require laboratory testing to determine any widespread materials issue with the pipe); and in the event, that crazing is identified, crazing less than 0.07874-inches (2 mm) in depth will have no adverse effects on the pipe. Any damage exceeding 0.07874-inches (2 mm) in depth will require a more detailed assessment to determine the appropriate mitigative measures, up to and including replacement.<sup>6</sup>
  - v) NFG must not install any FlexSteel pipe above grade (ground).
- c) Other possible signs of material damage or unsoundness must be reviewed by qualified personnel, and if the integrity of the FlexSteel pipe is negatively affected, NFG must remove and replace such pipe.
- i) NFG must document its repair and replacement procedures and standards within the comprehensive written specifications or standards required under 49 CFR 192.303 and the O&M Procedures required in 49 CFR 192.605.

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<sup>5</sup> NFG and FlexSteel do not believe discolorations will be an issue for this application.

<sup>6</sup> NFG and FlexSteel believe crazing and cracking will be unlikely for this project.

- ii) NFG must develop O&M Procedures based upon safe operating conditions, but must hand dig for initial location of the *special permit segment* pipeline and associated monitoring devices' communication lines. NFG must hand or shovel dig whenever excavation operations are within two (2) feet of the pipeline and associated monitoring devices' communication lines.
- iii) NFG must prepare and follow a damage prevention program in accordance with 49 CFR 192.614. NFG must make this program part of its O&M Procedures prior to placing the *special permit segment* in natural gas service.
- d) NFG must ensure that the *special permit segment* will comply with the requirements in 49 CFR Part 192, except as waived or modified herein as listed in Section II – Regulatory Background.

## 6) Corrosion Control

- a) NFG must apply cathodic protection (CP) on all buried FlexSteel pipe components, and joints within the *special permit segment* in accordance with 49 CFR Part 192 (except as waived or modified herein). Electrical conductivity of swaged joints to inner pipe layer must be tested.
  - i) Each FlexSteel fitting must be installed with an anode and CP test station. These fittings are electrically conductive with the FlexSteel pipe inner steel core.
- b) Test stations: NFG must install CP test stations at each metallic connector.
- c) NFG must perform external corrosion control monitoring on each buried metallic fitting in accordance with 49 CFR 192.465. NFG must perform CP monitoring at least once each calendar year, not exceeding 15 months. Corrosion control monitoring of the buried metallic fittings by a sampling basis is not permitted.
  - i) Each stainless steel and carbon steel FlexSteel fitting must be installed with a test station and anode, coated and direct buried.
- d) NFG must determine the native structure-to-electrolyte potential for each buried metallic fitting prior to energizing the CP system.
- e) NFG must seal the 12-inch casing ends to prevent water and other debris from entering the casing annulus.

- f) NFG must ensure that no 12-inch casing end, where natural gas can leak or migrate to the soil surface, is within the 6-inch FlexSteel pipe PIR (minimum of 131 feet) of a dwelling for human occupancy.
- g) NFG must develop and implement Construction and O&M Procedures to identify non-isolation areas and maintain electrical isolation of the FlexSteel pipe inner steel core from contact with the steel casing pipe and from water entering the inner steel core.

**7) Pressure and Temperature Control and Monitoring section**

- a) NFG must install an annulus monitoring system (Condition 7(d) below) that will provide continuous integrity monitoring of the external HDPE layer. If a holiday is present on the external layer, this system will detect this defect.
- b) Over-pressure Protection: NFG must install over-pressure protection equipment necessary to keep the pipeline pressure from exceeding 720 psig plus allowable build-up at any time. Allowable build ups are those conditions which occur due to anomalous conditions outside of the *special permit segment*. Occurrences resulting in pressures exceeding 720 psig plus allowable build-up of MAOP plus 4%, must be reported to the Director of PHMSA Eastern Region within 24 hours or the next business day of the occurrence for their review.
- c) Pressure Monitoring: NFG must monitor operating pressures by the installation of pressure transmitters and switches in the piping system that report to the facility's SCADA system. NFG must monitor the *special permit segment* with continuous and redundant pressure transmitters and switches. NFG must provide a means to inform operator personnel performing work on the pipeline of the pressure on the line.
- d) Annulus Monitoring: NFG must install an annulus monitoring system that will provide continuous integrity monitoring of the external HDPE layer. If a holiday is present on the external layer, this system will detect this defect.
  - i) NFG must continuously monitor through supervisory control and data acquisition (SCADA) the pressure of the annulus space between the FlexSteel pipe HDPE layers along the entire *special permit segment*. These pressure monitoring transmitters and pressure vents must be located at valve settings at Mile Post 0 and Mile Post 1.2, see Attachment 1 - FM120 Pipeline Overview Map.



- ii) The annulus between inside liner and outer jacket HDPE materials is used to monitor pipe integrity. This annulus is a pressure containing capable structure that is designed to contain pressure up to 30 psig, 1/8-inch female (national pipe thread) NPT outlets on the end fittings will be outfitted with the necessary tubing to attach pressure transmitters that must be incorporated into SCADA monitoring. With permeated gasses permitted to build to a predetermined level (15 to 20 psig), transmitters will be configured to alarm on indications of high or low pressure outside of the established acceptable range. Continuous pressure readings within acceptable ranges provide real time indication that several key integrity features are functioning as designed. Positive pressure indicates the outer jacket material is intact (holiday free), demonstrating a “perfect coating”, thus external corrosion cannot occur. It indicates that the HDPE liner material is intact and containing bore gas pressure as intended. Any breach of the liner will expose the outer jacket to bore pressure, resulting in a loss in pressure indicated by the “real time” annulus monitoring. This monitoring will alert NFG that third party damage or liner failure may have occurred, allowing prompt response for further investigation. NFG proposes to use this monitoring capability and monitor this annular pressure with a SCADA system on a continuous 24-hour basis.
- iii) The FlexSteel fittings are designed to allow the annulus of each segment of pipe to be common with each other. This allows for the monitoring of this annular space to take place at one end of the system.
- iv) A pressure relief valve with a 20 psig set point must be installed with annulus monitoring equipment to maintain the 15 to 20 psig pressure range. This relief and the associated annulus monitoring equipment must be located within fenced in locations at Mile Posts 0 and 1.2.
- e) Gas Temperature: NFG must continuously monitor natural gas temperature at the discharge of NFG’s Wellendorf Compressor Station, see Attachment 1 - FM120 Pipeline Overview Map, in order that the pipeline is not exposed to temperatures exceeding 150 degrees Fahrenheit (°F). If the FlexSteel pipe is exposed to temperatures exceeding 150 °F, the *special permit segment* pipeline must be shut down, pressure reduced to a maximum of 20% below the current operating pressure,

and the Director, PHMSA Eastern Region must be contacted within two (2) working days of the detection for their review.

f) SCADA and Shut-In:

- i) NFG must continuously monitor the *special permit segment* with a SCADA system. Remote controlled valves must be installed within the vicinity of Mile Post 0 and Mile Post 1.2.
- ii) If communication is lost for more than three (3) hours, NFG must have personnel onsite to continue operations and monitoring of the *special permit segment*.
- iii) NFG must document SCADA operating procedures and Control Room Management Procedures (49 CFR 192.631), within the O&M Procedures for the *special permit segment*.

**8) Construction and Operations**

- a) Tools and Equipment: NFG must have tools and fittings available either by stocking such or from a local vendor such that it can respond within a reasonable time to operational maintenance and emergency repairs (the number and types must be detailed in the O&M Procedures):
  - i) An inventory of tools and materials must be indicated in the O&M Procedures for maintenance and emergency repairs.
  - ii) NFG must have available either by stocking such or from a local vendor appropriate tools and fittings to repair and replace appurtenances and piping within the *special permit segment*.
  - iii) NFG must maintain a supply of FlexSteel pipe at NFG's project and/or operational maintenance yards for the *special permit segment*.
  - iv) Construction Specifications: NFG must develop construction specifications for all construction phases of the *special permit segment*. These construction specifications must be made available to the Director, PHMSA Eastern Region, 30-days prior to beginning construction of the *special permit segment* pipeline.
- b) Inspection criteria: NFG must develop inspection criteria for construction procedures and document them within the O&M Procedures. The inspection criteria must meet the requirements of these special permit conditions and 49 CFR Part 192 (except as

- waived or modified herein). These inspection criteria must be made available to the Director, PHMSA Eastern Region, 30-days prior to beginning construction of the *special permit segment* pipeline.
- c) Repair criteria: NFG must develop pipe repair criteria and document them within the O&M Procedures. Repair criteria must be submitted to the Director, PHMSA Eastern Region, 30-days prior to beginning construction of the *special permit segment* pipeline.
  - d) Hydrostatic test: Prior to NFG putting the pipe in service, the pipe, connections, and appurtenances must be field hydrostatically tested at a pressure of 1.5 times the MAOP of 720 psig (minimum test pressure of 1080 psig) for a minimum of 24 hours with recording charts (pressure chart, temperature chart, dead weights and log, and calibration records of equipment, calibrated within 30 days of test), the results of which must be made available to the Director, PHMSA Eastern Region for review, including determination parameters of an acceptable test. NFG must compensate for temperature and elevation variations and such compensation must be documented on test records.
  - e) Leakage detection surveys: NFG must conduct leakage detection surveys of the entire *special permit segment* four (4) times per calendar year at a minimum, not to exceed 4-½ months between surveys, utilizing instrumented leak detection equipment capable of parts per million (ppm) detection. NFG must repair all leaks as they are found, and notify the Director, PHMSA Eastern Region of any leaks found as soon as it is safe to do so. Leak testing procedures, equipment, and scheduling must be documented within the O&M Procedures. The first survey must be performed within 48 hours of commencement of pipeline operations with natural gas.
  - f) As defined in Condition 1, any new construction outside the *special permit segment* must conform to 49 CFR 192.327 - Cover.
    - i) NFG must conform to the depth of cover requirements in 49 CFR 192.327 for any new construction outside of the *special permit segment*. However, within the *special permit segment*, NFG requested a waiver of these requirements. A primary objective of NFG's special permit request was to capitalize on the opportunity to perform the construction via the insertion method to avoid the significantly higher level of environmental impact that would be necessitated

by using the open trench construction method. Inherent in this request was utilization of the existing 12-inch line as a casing or host pipe into which the FlexSteel pipe will be inserted. This pipe is a pre-1970's vintage pipeline. Its installation was before Part 192 was developed, and there are locations that do not meet depth of cover requirements.

- ii) Based upon available depth of cover information, the pipe located at the northern end (the Class 2 section of line) has depths of cover meeting 49 CFR 192.327, while the data available in the Class 1 section indicates varying depths, all of which may not meet 49 CFR 192.327 requirements depending on soil conditions (i.e. Class 1 locations in consolidated rock may be installed at a depth of cover of 18 inches per 49 CFR 192.327 as opposed to an installation depth of cover of 30 inches in normal soil). In addition, two known exposures of the existing line (one at a stream crossing at Mile Post 4.45 and one upland exposure at the southern terminus of the project) exist. The pipe at these locations will be removed and the FlexSteel replacement pipe will be direct buried in these locations to a depth of cover meeting 49 CFR 192.327 requirements. All pipe locations with cover less than 24-inches must have additional preventive and mitigative measures such as additional pipeline markers, lowering the pipe, adding cover, or installing subsurface concrete safety barriers.
- iii) Due to the insertion method, periodic bell holes will be dug and sections of the existing pipeline will be removed to facilitate the installation process. In these areas, the FlexSteel coupler fittings will be direct buried, along with the adjacent FlexSteel pipe. To minimize environmental impacts, the bell holes will be kept to a minimum length that will allow for the safe installation of the FlexSteel pipe. The expected length of the bell holes is anticipated to be approximately 30 feet long. It is NFG's intent to install the FlexSteel coupler fittings to a depth that satisfies 49 CFR 192.327, if practicable. To mitigate any potential impingement of the outer FlexSteel liner or damage to the casing Link-seal, NFG may need to bury the FlexSteel pipe and fittings up to the depth of cover of the existing line.

- (1) These areas must have line markers and/or test stations installed to designate the location of the line. Warning tape must also be installed approximately one (1) foot above the pipe.
- iv) At locations where it is possible to lower the FlexSteel pipe without the potential of impingement of the outer liner, NFG must install the pipe at a depth per the requirements of 49 CFR 192.327.
- v) As per the requirements of the special permit, NFG must perform patrolling of this line four (4) times per calendar year at a minimum, not to exceed 4-½ months between surveys. This will include observations of any locations that may have become exposed. These exposures must be reviewed and prioritized for remediation per NFG's O&M Procedures, not to exceed 12-months.

## 9) Communication and Records

- a) Communication and contact of personnel: NFG must maintain a log of all material suppliers and vendors, consultants, subcontractors, NFG employees, and all other parties involved in the material supply, design, construction, and O&M of this *special permit segment* with name, address, phone number, mobile phone number, e-mail, and other pertinent information, including COQ and OQ training data.
- b) Photos and Videos: NFG must develop documentation that is representative of the following phases of the *special permit segment* construction utilizing FlexSteel pipe and fittings: offloading, stringing/uncoiling, inserting, pulling-through, joining/swaging, coating of fittings, cathodic protection installation and backfilling. The representative operations must be documented with photographs, videos or other appropriate forms of documentation, which must be made available to the Director of PHMSA Eastern Region within 90 days of the *special permit segment* in-service date.
- c) Design and Material Review: Before operating the pipeline with natural gas, NFG must make available the following information, to the Director, PHMSA Eastern Region:
  - i) Specific materials used in the FlexSteel line pipe used in the *special permit segment*, with detailed schematic of the layers, layer thickness, OD, and ID;

- ii) Pipe manufacturing quality assurance processes and programs - including, but not limited to, procedures, pipe and material test results, standards followed, certifications, manufacturing personnel qualifications, and any other items regarding quality assurance;
  - iii) Design criteria - for each Class location, road crossings, and stream crossings, if applicable, see Conditions 1(b) and (c) above;
  - iv) Calculations of maximum loads that the FlexSteel line pipe can tolerate and will be subject to in service;
    - (1) Due to the nature of the insertion installation method, the majority of the installed FlexSteel pipe will be cased, which includes all road crossings. There will be some short locations of direct burial located at transitions to above grade valve settings as well as locations where the midline couplings will be direct buried approximately every 1,200 feet. It is anticipated that the largest load that the FlexSteel pipe will experience will be from a mowing tractor.
    - (2) NFG will require any planned third-party heavy equipment crossings of the *special permit segment* to be approved through an encroachment agreement. This agreement will include the requirement for the crossing to have construction hardwood mats, steel plates, air bridges, or concrete pads over the segment installed prior to traversing the line. The appropriate crossing requirements will require a crossing to ensure that excessive live loads are not transmitted into the Flex Steel pipe by following industry accepted standard API 1102 for calculating the anticipated stresses on the pipe to not exceed a 30% of burst pressure and evaluated by a NFG subject matter expert.
  - v) Process and calculations used to establish MAOP, consistent with this special permit and 49 CFR Part 192 (except as waived or modified herein); and
  - vi) Detailed comparison and correlation of the established MAOP with the Hydrostatic Design Basis (HDB) of the FlexSteel pipe.
- d) Construction Start: At least 14 days before beginning construction, NFG must notify the Director, PHMSA Eastern Region of the date, time, and location of pipeline

installation and provide opportunity for the Director, PHMSA Eastern Region to witness the installation.

- e) Material Records: NFG must provide records showing manufacturer personnel and a Quality Assurance (QA)/Quality Control (QC) inspector were onsite during installation of all connections, flanges, and the laying of pipe to ensure that proper technical evaluation of installation procedures was conducted. Mechanical and chemical property test reports of all pipe must be maintained by NFG for the operational life of the pipeline.
- f) Pipe Installation Records: NFG must provide an installation report detailing any Construction or QA/QC issues that arose during installation that may have compromised the integrity of the pipe and document how such issues were addressed to maintain integrity, including but not limited to:
  - i) Material Damage - material loss or damage that would result in repair or replacement, both internal and external;
  - ii) Pipe dents - maximum dent percentage that pipe can sustain, and repair methods;
    - (1) Dents greater than 6% of outside pipe diameter must be removed and replaced.
  - iii) Any scratch or gouge:
    - (1) 0.11811-inches (3 millimeters (mm)) in depth or less must be consider acceptable;
    - (2) 0.11811-inches (3 mm) or more in depth but does not expose the inner steel core and is less than six (6) square inches in area can be repaired;
    - (3) 0.11811-inches (3 mm) or more in depth but does not expose the inner steel core and is more than six (6) square inches in area must be cut out and replaced; or
    - (4) That exposes the inner steel core must be cut out and replaced.
  - iv) Bending - maximum pipe bending radius during installation; and
  - v) Environmental Effects - temperature, moisture, freezing, or soil.
- b) If at any time NFG becomes aware of a threat to the integrity of the *special permit segment* pipe that poses a risk to the public, or a failure risk, NFG must notify the Director, PHMSA Eastern Region immediately. Concurrent with such notification,

NFG must outline the potential mitigative and integrity measures that could be used to address the threat or risk, including replacement with steel line pipe currently approved by 49 CFR Part 192.

- c) NFG must notify the Director, PHMSA Eastern Region if:
  - i) Repairs and modifications are required or made to the FlexSteel pipe, including fittings;
  - ii) The *special permit segment* is at any time damaged or hit; or
  - iii) The pipe or fitting manufacturer issues a product recall, or materially modifies the product defect specification in response to safety concerns. In the event of a product recall or material defect pertaining to the FlexSteel products used in the *special permit segment*, NFG will notify the Director, PHMSA Eastern Region within five (5) days of becoming aware of the recall or material defect.
- d) Manuals - Design, Construction, Operating, Maintenance, and Emergency Response: NFG must submit those manuals, procedures, specifications, or other documents pertaining to the Design, Construction, O&M, and Emergency Response related to the *special permit segment* for review by the Director, PHMSA Eastern Region at least 30 days prior to operation of the *special permit segment* pipeline, unless otherwise indicated in writing by the Director, PHMSA Eastern Region.
- e) Post-Construction review with PHMSA:
  - i) NFG must conduct a post-construction special permit review with the Director, PHMSA Eastern Region. The purpose of such review is to review the documentation of NFG's compliance with all construction-related special permit conditions and have been incorporated into their O&M Procedures. NFG must contact the Director, PHMSA Eastern Region within 14 days before completion of construction of the pipeline. The review must take place after construction has been completed but before operation commences, unless otherwise approved by the Director, PHMSA Eastern Region.
  - ii) NFG must complete this review prior to submitting to PHMSA the certification required in Condition 13 below.
- f) Annual Review with PHMSA: NFG must conduct a one (1) year O&M review with PHMSA and annually thereafter, not to exceed 15 months. The review must be



scheduled each calendar year by NFG with the Director, PHMSA Eastern Region after pipeline operations (in-service) begin in the *special permit segment*.

## 10) Gas Quality

- a) NFG must develop and implement a program to monitor and mitigate the presence of deleterious gas stream constituents through the usage of continuous monitoring equipment, such as chromatographs, for gas sampling.
- b) NFG's Supply Transmission System is a FERC regulated pipeline system, which it is required to maintain a tariff with gas quality requirements for shippers to meet. These requirements are as follows.
  - i) All gas must contain no more than twenty (20) grains of total sulfur (S), nor more than three-tenths (0.3) grain of hydrogen sulfide ( $H^2S$ ) per one hundred (100) cubic feet;
  - ii) All gas must contain no more than two-tenths of one percent (0.2 of 1%) by volume of oxygen ( $O^2$ );
  - iii) All gas must contain no more than four percent (4%) by volume of a combined total of carbon dioxide ( $CO^2$ ) and nitrogen ( $N^2$ ) components; provided, however, that the total carbon dioxide ( $CO^2$ ) content must not exceed two percent (2%) by volume;
  - iv) All gas must have a temperature of not more than one hundred twenty degrees Fahrenheit; and
  - v) All gas must have been dehydrated by NFG for removal of water in a vapor state, and in no event, contain more than seven (7) pounds of water vapor ( $H^2O$ ) per million cubic feet.
- c) This gas composition requirement is within the specification for the FlexSteel pipeline material being used for the *special permit segment*.
- d) NFG must actively monitor the gas entering its system to ensure the product being transported meets this gas quality standard. NFG must monitor the gas quality passing through this *special permit segment* and the gas composition must be analyzed regularly.
- e) If the gas composition has been found to be out of specification the gas supply will be shut off per NFG O&M Procedures.

- f) If it is determined that the commodity transported in this pipeline *special permit segment* is not compatible with, and proves detrimental to, this pipe material, PHMSA reserves the right, as a condition of this waiver, to curtail or discontinue the use of this pipe material.

#### **11) Right-of-Way Management Program**

- a) NFG must incorporate the applicable best practices of the Common Ground Alliance (CGA) into its damage prevention program within the *special permit segment*.
- b) NFG must install and maintain line-of-sight markings on the pipeline in the *special permit segment* except in agricultural areas or large water crossings such as lakes where line-of-sight signage is not practical.

#### **12) Annual Reporting**

Annually, following the grant of this special permit, NFG must make available the following to the Director, PHMSA Eastern Region:

- a) The number of new residences, other structures intended for human occupancy and public gathering areas built within 220 yards of the pipeline centerline and along the *special permit segment*.
- b) Any new integrity threats identified during the previous year and the results of any excavations or other integrity assessments performed during the previous year in the *special permit segment* including any encroachments from right-of-way patrols, gas leakage patrols, or other call-outs and any gas leakage from these activities or from SCADA monitoring or annulus monitoring pressures greater than 20 psig.
- c) Any reportable incident, any leak normally indicated on the DOT Annual Report, and all repairs on the pipeline that occurred during the previous year in the *special permit segment*.
- d) Any on-going damage prevention initiatives affecting the *special permit segment* and a discussion of the success of the initiatives.
- e) Any mergers, acquisitions, transfer of assets, or other events affecting the regulatory responsibility of the company operating the pipeline.
- f) NFG must identify and document any potential threats, and how they will be mitigated. If a threat was identified in a past annual report, how the threat was mitigated must be documented.

- g) Annual reports must be received by PHMSA by the last day of the month in which the special permit is dated. For example, the annual report for a special permit dated September 15, 2018, must be received by PHMSA no later than September 30, each year beginning in 2019. Annual reports must be placed in the special permit docket (PHMSA-2017-0090) in [www.regulations.gov](http://www.regulations.gov).

### 13) Certification

A senior executive officer, vice president or higher, of NFG must certify in writing the following:

- a) NFG pipeline meets the conditions described in this special permit and 49 CFR Part 192 (except as waived or modified herein) for the *special permit segments*,
- b) NFG has maintained the following records for the *special permit segment* and included these requirements in NFG's O&M Procedures:
  - i) Documents (material test reports) certifying that the pipe in the *special permit segment* meets the requirements of API 15S, Second Edition and all related material standards in this special permit and 49 CFR Part 192 (except as waived or modified herein).
  - ii) Documentation of compliance with all conditions of this special permit must be retained for the applicable life of this special permit for the referenced *special permit segment*.
- c) That all procedures and specifications for the NFG pipeline have been updated to include all additional construction, and operating and maintenance (O&M) requirements of this special permit and 49 CFR Part 192 (except as waived or modified herein) applicable sections; and
- d) That NFG has reviewed and modified its damage prevention program relative to the NFG pipeline to include any additional conditions required by the special permit.
- e) NFG must send the certifications required in Condition 13 (a) through (d) with completion date, compliance documentation summary, and the required senior executive signature and date of signature to the PHMSA Associate Administrator with copies to the Director, PHMSA Eastern Region, Director, PHMSA Standards and Regulations Division, and Director, PHMSA Engineering and Research

Division within 30 days prior to placing the *special permit segment* into natural gas service.

#### **14) Limitations**

PHMSA proposes to grant this special permit subject to the limitations set forth in 49 CFR 190.341 as well as the following limitations:

- a) PHMSA has the sole authority to make all determinations on whether NFG has complied with the specified conditions of this special permit. Failure to comply with any condition of this special permit may result in revocation of the permit and require NFG to comply with the regulatory requirements in 49 CFR 192.121 and 192.123(e).
- b) Any work plans and associated schedules for the *special permit segment* and special permit inspection area are automatically incorporated into this special permit and are enforceable in the same manner.
- c) Failure by NFG to submit the certifications required by Condition 13 (Certification) within the time frames specified may result in revocation of this special permit.
- d) As provided in 49 CFR 190.341, PHMSA may issue an enforcement action for failure to comply with this special permit. The terms and conditions of any corrective action order, compliance order or other order applicable to a pipeline facility covered by this special permit will take precedence over the terms of this special permit.
- e) If NFG sells, merges, transfers, or otherwise disposes of all or part of the assets known as the FM120 Pipeline in the *special permit segment* or special permit inspection area, NFG must provide PHMSA with written notice of the change within 30 days of the consummation date. In the event of such transfer, PHMSA reserves the right to revoke, suspend, or modify the special permit if the transfer constitutes a material change in conditions or circumstances underlying the permit.
- f) PHMSA grants this special permit to limit it to a term of no more than ten (10) years from the date of issuance. If NFG elects to seek renewal of this special permit, NFG must submit its renewal request at least 180 days prior to expiration of the ten (10) year period to the PHMSA Associate Administrator for Pipeline Safety with copies to the Deputy Associate Administrator, PHMSA Field Operations;

Deputy Associate Administrator, PHMSA Policy and Programs; PHMSA Southwest Region Director; Director, PHMSA Standards and Rulemaking Division; and Director, PHMSA Engineering and Research Division. All requests for a renewal must include a summary report in accordance with the requirements in Condition 12 (Annual Report to PHMSA) above and must demonstrate that the special permit is still consistent with pipeline safety. PHMSA may seek additional information from NFG prior to granting any request for special permit renewal.

## **IX. Affected Resources and Comparative Environmental and Safety Consequences**

The environmental resources and issues listed here are analyzed to evaluate the potential for environmental impact, in accordance with NEPA.

### **1. Safety:**

Due to the design and composition of the FlexSteel pipe, many of regulations in 49 CFR Part 192 are not applicable because Part 192 dictates actions to ensure the quality and condition of steel pipe, along with steel components and appurtenances. Because FlexSteel contains an inner steel core surrounded on the top and bottom with high density polyethylene, PHMSA must contemplate the safety risks addressed by the regulations that are not applicable to a flexible steel pipeline in developing and proposing special permit conditions. While the steel core will be surrounded by polyethylene, the steel is subject to corrosion like any other steel used to construct pipelines. PHMSA also considered that there are currently no inline inspection tools available to monitor the interior of the pipeline. The conditions in this document will ensure an equivalent level of safety as full compliance with 49 CFR Part 192.

If a failure occurred, the released volumes of natural gas would be less if the special permit was granted, as shown in the following Table 1: Volume Comparison:

<b>Table 1: Volume Comparison</b>		
<b>Variables</b>	<b>Existing 12-inch Steel</b>	<b>6-inch FlexSteel Pipe</b>
Outside Diameter – inches (in)	12.75	7.05

<b>Table 1: Volume Comparison</b>		
<b>Variables</b>	<b>Existing 12-inch Steel</b>	<b>6-inch FlexSteel Pipe</b>
Inside Diameter - inches (in)	12.188	5.600
Area (feet <sup>2</sup> )	0.810	0.171
Length (feet of ft)	30,624	30,624
Volume (ft <sup>3</sup> )	24,812	5,238
MAOP (psig)	660	720
Temperature (°F)	60	60
Temperature (°K)	520	520
Standard Temperature (°F)	60	60
STD Temp (°K)	520	520
<b>Volume – Million Standard Cubic Feet (MSCF)</b>	<b>1139</b>	<b>262</b>

The potential impact radius (PIR) for the FlexSteel pipeline will be 130.5 feet. This assumes an outside diameter of 7.05-inch for the FlexSteel material and a maximum operating pressure of 720 psig. If the special permit is not granted and a 6-inch steel pipeline<sup>7</sup> would need to be installed, then the PIR would be 122.7 feet., a difference of 7.8 feet. Based on this relatively small increase in the PIR, it is unlikely that additional people would be affected by a failure if a special permit is granted, given the sparsely populated nature of the area adjacent to the right of way.

FlexSteel facilities accommodate foam and solid cast cleaning pigs. These pigs are used to clear obstructions, dewater, or clean a line to prevent or impede the development of corrosion. Unlike traditional steel pipelines, FlexSteel pipelines cannot accommodate inline inspection tools that provide information about the condition of the pipeline.

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<sup>7</sup> A 6-inch steel pipeline would have a 6.625-inch outside diameter.

The special permit conditions described in Section VIII are designed and intended to reduce the likelihood of a failure of the FlexSteel pipe. These special permit conditions include measures related to the pipeline design, materials, construction, personnel qualification, operation, gas quality, maintenance, repair, record-keeping, right of way protection, depth of cover, and reporting requirements. Another measure of safety will be provided because the FlexSteel pipe will be inserted inside an existing 12-inch steel pipeline. While the outer pipeline will not protect against all pipeline integrity risks to the FlexSteel pipeline, the outer pipeline will likely provide protection against the threats associated with pipeline rupture, including flying shrapnel. The outer pipeline may also provide containment of natural gas in the unlikely event of the failure of the FlexSteel pipeline.

2. **Aesthetics:**

Neither alternative will change the visual character of the *special permit segment*. The use of FlexSteel pipe will allow for less temporary land disturbance.

3. **Agricultural Resources:**

There are no identified agricultural resources within the *special permit segment*, therefore there will be no impact to agricultural resources.

4. **Air Quality:**

Construction activities associated with the selected alternative will result in temporary increases in emissions of some pollutants due to the use of non-stationary equipment powered by diesel fuel or gasoline engines; the temporary generation of fugitive dust due to disturbance of the ground surface, vegetation clearing, and other dust generating actions; and indirect emissions attributable to activities associated with construction activities of the *special permit segment* (e.g., workers commuting to and from work sites during construction, etc.).

Construction related emission estimates are based on a typical construction equipment list, hours of operation, and vehicle miles traveled by the construction equipment and supporting vehicles for the *special permit segment*. The insertion method will require at most two (2) months to complete the replacement of the FM120 Pipeline. The no action alternative or conventional open-cut method would require approximately three months.

The additional time of construction for the conventional open-cut method would require more equipment, hours of operation, and vehicle miles traveled which would result in more emissions of pollutants, including green-house-gases (GHGs).

## 5. **Biological Resources:**

### Wildlife

The selected action crosses a variety of habitat types commonly found in forested regions of northern Pennsylvania. Vegetation that typifies major natural habitat types is described in the vegetative communities' section below. The existing pipeline crosses these habitats, which could be inhabited by the following species.

Mammalian species likely to inhabit the ***special permit segment*** include elk (*Cervus elaphus*), American black bear (*Ursus americanus*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), eastern chipmunk (*Tamias striatus*), eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), northern raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), white-tailed deer (*Peromyscus leucopus*), woodchuck (*Marmota monax*), and several species of shrews and voles (PA Mammal Atlas, 2016).

Amphibians and reptiles present in the ***special permit segment*** may include the spotted salamander (*Ambystoma maculatum*), Allegheny mountain dusky salamander (*Desmognathus ochrophaeus*), Northern dusky salamander (*Desmognathus fuscus*), red-spotted newt (*Notophthalmus viridescens*), Eastern American toad (*Anaxyrus americanus*), spring peeper (*Pseudacris crucifer*), wood frog (*Lithobates sylvaticus*), green frog (*Rana clamitans*), snapping turtle (*Chelydra serpentina*), northern ring-necked snake (*Diaphis punctatus*), and Eastern garter snake (*Thamnophis sirtalis*) (PA Amphibian and Reptile Society; 2015a, 2015b, 2015c).

Bird species likely to inhabit the ***special permit segment*** include the black-throated green warbler (*Setophaga virens*), cedar waxwing (*Bombycilla cedrorum*), blue jay (*Cyanocitta cristata*), indigo bunting (*Passerina cyanea*), red-eyed vireo (*Vireo olivaceus*), hermit thrush (*Catharus guttatus*), common yellowthroat (*Geothlypis trichas*), chipping sparrow (*Spizella passerina*), dark-eyed junco (*Junco hyemalis*), red-winged blackbird (*Agelaius phoeniceus*),



common grackle (*Quiscalus quiscula*), American robin (*Turdus migratorius*), and barn swallow (*Hirundo rustica*) (Cornell Lab of Ornithology, 2016a and 2016b).

As noted above, the selected action will take place in an existing right of way, in the existing steel pipeline. The right of way was previously disturbed during the construction and installation of the existing FM120 Pipeline, 1950s vintage, 12-inch diameter bare steel natural gas pipeline. The insertion of the FlexSteel pipeline as part of the FM120 Pipeline construction methodology involves minimal earth disturbance within the ROW and therefore will result in less disturbance to wildlife generally than replacement or extensive repair to the existing pipe with new steel pipe, as would be required under the no action alternative if full regulatory compliance were required.

### Fisheries

Fisheries are surface waterbodies that provide habitat for fish. Fisheries are characterized according to water temperatures (warm water or cold water), types of fishing uses (commercial or recreational), and utilization by open water marine fishes that require freshwater upstream areas to spawn (i.e., anadromous). Significant fisheries resources are defined as waterbodies that either: 1) provide important habitat for foraging, rearing or spawning of fish species; 2) represent important commercial or recreational fishing areas; or 3) support large populations of commercially or recreationally valuable fish species or species listed for protection at the federal, state, or local level.

The fish species that are likely to occur within the *special permit segment* are Brown Trout (*Salmo trutta*, cold water), Brook Trout (*Salvelinus fontinalis*, stocked in cold water), Lake Trout (*Salvelinus namaycush*, stocked in cold water), Tiger Muskellunge (*Esox masquinongy*, stocked in warm water), Walleye (*Sander vitreus*, stocked warm water), Smallmouth Bass (*Micropterus dolomieu*, warm water), and Rock Bass (*Ambloplites rupestris*, warm water) (PFBC, 2004 & 2005).

Fisheries of special concern are surface waters containing fisheries of exceptional recreational value, such as those that support cold water fishes through natural reproduction, those that provide habitat for protected species, or those that are assigned special state fishery management regulations. Other special concern fisheries may include

those where economic investments, such as stocking programs, have been implemented.

All streams crossed by the *special permit segment* are considered sensitive surface waters and are either listed by the PFBC as stream sections that support the natural reproduction of trout or are Un-named tributary that contribute to the water quality of the naturally reproducing stream (PFBC, 2017a). Additional sensitive surface waters were those considered as an approved trout water by the PFBC (PFBC, 2017b). No streams crossed by the *special permit segment* are listed on the PFBC website as being Class A wild trout streams or wilderness trout streams (PFBC, 2017c and 2017d).

Although waters are classified as fisheries of special concern (EV and natural reproducing trout streams), no fish species were identified in the *special permit segment* as being threatened or endangered. The selected action using the insertion method of construction will result in less disturbance to these sensitive stream areas than the no action alternative which would entail a conventional open-cut technique if the line were replaced under the no action alternative in full compliance with 49 CFR Part 192.

#### Vegetative Communities

The vegetative communities within the *special permit segment* are composed of upland herbaceous, upland shrub, and mixed hardwood forest. A summary of typical communities within the *special permit segment* are defined below.

- Upland herbaceous land is defined as land that is actively maintained in herbaceous vegetation and is mainly associated with existing ROWs, open pasture, developed land, roadways, and residential lands. Disturbed areas such as these are typically devoid of undisturbed vegetation or consist of impervious surfaces. Open land throughout the *special permit segment* includes species such as Japanese stiltgrass (*Microstegium vimineum*), common velvetgrass (*Holcus lanatus*), birdsfoot trefoil (*Lotus corniculatus*), and deertongue (*Dichanthelium clandestinum*).
- Upland Shrub land is defined as land that is actively maintained in scrub-shrub herbaceous vegetation and is mainly associated with pasture. Upland shrub throughout the *special permit segment* included species such as multiflora rose (*Rosa multiflora*) and pin cherry (*Prunus pensylvanica*).

- Mixed Hardwood Forest includes forested areas having a predominance of trees that lose their leaves at the end of the frost-free season or at the beginning of a dry season. The *special permit segment* is located within the Laurentian Mixed Forest Province (United States Forest Service, 2014). The Laurentian Mixed Forest Province includes forests from early- to late-successional stage with some coniferous components along with a mosaic of pure deciduous forest in favorable habitats with good soils and pure coniferous forest in less favorable habitats with poor soils (United States Forest Service, 2014). Common deciduous species identified along the *special permit segment* included sugar maple (*Acer Saccharum*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*), American beech (*Fagus grandifolia*), and eastern hemlock (*Tsuga canadensis*). The selected alternative utilizing insertion of the FlexSteel pipe into the existing pipeline will result in significantly less disturbances to vegetative communities than the conventional open-cut technique under the no-action alternative. The selected action will require the disturbance of natural vegetation for approximately 13.1 acres whereas, the conventional open-cut method would require 52 acres

## 6. Climate Change:

The alternatives will not significantly contribute to global climate change. As noted below, the selected action will be faster than conventional steel pipeline construction under the no action alternative and will result in fewer emissions from the construction equipment. In any event, the selected action does not authorize pipeline transportation of natural gas. When looking at GHG and other emissions, there are two aspects to consider. First, are the emissions that would occur during construction of the facilities. Since the FlexSteel installation utilizes the existing 12-inch line as a conduit or casing, this greatly minimizes both the disturbed area and the amount of necessary equipment needed for construction. NFG estimates that the FlexSteel installation will require a crew of 15 to 20 people and perhaps 6-8 pieces of equipment for three (3) months. By contrast, a conventional open cut installation employed for pipeline replacement would require an equipment spread of 50-60 people and 25 to 30 pieces of heavy equipment for approximately four (4) months. In addition, the FlexSteel will be installed inside of the existing 12-inch steel pipeline, making it less susceptible to third-party damage. FlexSteel allows a small amount of natural gas

permeation rate (approximately 5.8 standard cubic feet per day (scf/day) for this project) through the HDPE, but this amount is negligible as compared to even a single leak over time. In light of these construction and operational considerations, NFG expects that the FlexSteel will have less emissions over the lifecycle of the pipeline.

## **7. Cultural Resources:**

On November 11, 2016, NFG initiated consultation with the PA State Historic Preservation Office (SHPO) regarding cultural resources and to determine if construction activities associated with the *special permit segment* would have the potential to impact known historic and/or archaeological sites. In a letter dated December 22, 2016, the PA SHPO responded with a request for a Phase I archaeological survey to investigate areas that contain a high probability for archaeological resources. It was determined by the PA SHPO that the *special permit segment* will not affect aboveground historic properties. A Phase I Archaeological Investigation was provided to the PA SHPO on February 22, 2016, stating no impact to archaeological resources and no further review would be required. In a letter dated March 24, 2017, the PA SHPO concurred with the results of the Phase I survey that the *special permit segment* would not affect historic properties and/or resources.

## **8. Environmental Justice:**

The selected action and no action alternative will not be situated in or disproportionately impact, any predominantly minority or non-English language population. The FM120 Pipeline insertion crosses census block groups 420834209002 and 420479501001 (which span a land area of 238 square miles). A review of the US Environmental Protection Agency's (USEPA) EJSCREEN American Community Survey Report of the two block groups is included in Table 2 below. Of the total population within the two block groups, approximately three percent is classified as minority, lower than the state average of 22 percent, and 33 percent is low income, slightly higher than the state average of 30 percent.

**Table 2: EJSCREEN Review of Census Block Groups 420834209002 and 420479501001**

Total Population	Per Capita Income	Total Hispanic Population	Linguistically Isolated Population	Total Non-Hispanic Population						
				White Alone	Black Alone	American Indian Alone	Non-Hispanic Asian Alone	Pacific Island Alone	Other Race Alone	Two or More Races Alone
2,420	\$24,604	36	0	2,355	21	7	0	0	0	1

Source: USEPA. 2018. *EJSCREEN, EPA's Environmental Justice Screening and Mapping Tool (Version 2018)*. Accessed February 2019 from <https://ejscreen.epa.gov/mapper/>.

## 9. Geology, Soils, and Mineral Resources:

### Soils

Typical impacts to soils that may occur during pipeline construction include mixing of layers within the soil profile, introduction of rock fragments to the soil profile, compaction, rutting, erosion, and alteration of drainage characteristics through mixing. Based on the soils present in the area of the FlexSteel pipe installation method of insertion, and the clearing, erosion and sediment (E&S) control, trenching, backfilling, and restoration and cleanup procedures that will be employed, the impacts from the construction are expected to be minimal. The primary soil limitations identified along the *special permit segment* route are erosion hazard, compaction prone, revegetation concerns, potential for introduction of stones and rocks into topsoil, shallow bedrock, prime farmland or farmland of statewide importance and hydric soils. The comparative impacts are similar to the above analyses. Both alternatives would result in impacts to and disturbance of soils, but the selected alternative will have less impact than the no action alternative.

### Erosion Hazard

Soil erosion potential is affected by the soil lithology, including mineralogy, grain size, texture and organic content. Soil erosion potential is influenced by slope and exposure to erosion mechanisms. Soils with denser vegetation cover are less susceptible to erosion. Removal of vegetation associated with construction activities, whether by direct stripping or by other mechanical means, greatly increases erosion potential. Both alternatives would result in removal of vegetation, but the no-action alternative would result in greater impact to vegetation. The classification of a soil as highly erodible by the USDA-NRCS is directly related to the soil's susceptibility to erosion by water or wind (USDA-NRCS,

2016b).

### Compaction Prone

Soils with a high potential for compaction will be affected during construction activities through the repeated movement of machinery across the soil surface as well as from the staging of materials. Soils with high shrink-swell potential and poor drainage characteristics tend to be susceptible to compaction, particularly when wet. This is due to certain types of clay being able to absorb vast quantities of water that cause the clay to shrink and swell. Both alternatives would result in impacts to soils, but the no-action alternative would result in greater risks of compaction.

### Revegetation Concerns

Some soil components found within the *special permit segment* are described as having revegetation concerns. Those soil types with revegetation concerns are described as having the following soil characteristics: coarse textured soils (sandy loams and coarser) that are moderately well to excessively drained and soils with an average slope greater than or equal to nine percent. Typically, soils with low revegetation potential can also be attributed to high compaction and/or erosion potentials. Both alternatives would result in removal of vegetation, but the no-action alternative would result in greater impacts.

### Hydric Soils

At a minimum, NFG will implement the procedures outlined in the erosion and sediment control plan to minimize and mitigate impacts to hydric soils. Additionally, since the pipeline route was determined by the existing FM120 Pipeline location, NFG identified bell holes, push/pull points, and access locations to avoid and minimize impacts to wetlands where possible. As discussed in Section 17, Wetlands, the pipeline insertion method would cross 15 Palustrine Emergent (PEM) wetlands with temporary impacts totaling 0.26-acre, whereas the conventional open-cut method under the No Action alternative would cross a total of 33 wetlands, with temporary impacts of 4.10 acres to PEM wetlands and 0.23 acres to Palustrine Unconsolidated Bottom (PUB) wetlands. Timber mats will be used to minimize rutting and compaction in saturated wetlands.

NFG will abide by the Federal Energy Regulatory Commission's *Upland Erosion Control*,

*Revegetation, and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures* (2013) during construction except where deviations were approved by the Federal Energy Regulatory Commission (FERC) to allow additional temporary workspace within 50 feet of a wetland. NFG will also utilize Best Management Practices (BMPs) in areas of earth disturbance as shown on the Pennsylvania Department of Environmental Protection-approved erosion and sediment control plan to avoid or minimize potential impacts associated with construction activities in wet soil conditions, including:

- Limiting certain types of construction or restoration work activities in the ***special permit segment*** if the soils are determined to be excessively wet. For example, during topsoil removal if the soil is too wet to safely and effectively work within the ROW the contractor will temporarily suspend activities in that area until soils are dry enough to work or move to a drier area.
- Excess water will be removed to allow excavation inspection and to allow for drier soil conditions for restoration activities. Dewatering of the trench (e.g., to levels with the top of sandbags supporting the pipe) will be performed to minimize or avoid impacts associated with backfilling under wet conditions.
- Use of BMPs for dewatering, including the use of floating pumps, filter bags, or sediment corrals to minimize potential impacts will be incorporated into the construction.

NFG will provide environmental construction, mitigation, and safety training for the personnel of the successful bidding contractors, as well as the contractor's environmental representative, and NFG's inspection staff and Project management staff. Incorporated into this training will be compliance with federal, state, county and municipal permit requirements. In the preparation of the contract bid(s), NFG will incorporate specific language from the approvals, permits, and regulatory agencies specific to the ***special permit segment*** to communicate to bidding entities the proper procedures for construction, stabilization and restoration. NFG will assign or designate a minimum of one environmental inspector for the installation of the ***special permit segment***.

### Physiological Location

The ***special permit segment*** is in northern Pennsylvania and part of the Appalachian Plateaus physiographic province Pennsylvania Department of Conservation and Natural Resources (PADCNR, 2016a). The Appalachian Plateaus province is a highland that has been eroded by streams that have created deep valleys and hilly topography (PADCNR, 2014). Further divided, the Project is located within the High Plateau Section and Deep Valleys Section (PADCNR, 2016a). The High Plateau section has a dominant topographic form characterized by broad, rounded to flat uplands having deep, angular valleys. The local relief is moderate to high (ranging from 300 to 1,000 feet). Approximate elevation ranges from 980 to 2,360 feet. The drainage pattern of this section is dendritic (PADCNR, 2016b and 2016e). The Deep Valleys section has a dominant topographic form of very deep, angular valleys with some broad to narrow uplands. The local relief is moderate to very high (ranging from 300 to greater than 1,000 feet). Approximate elevation ranges from 560 to 2,560 feet. The drainage pattern of this section is angulate and rectangular (PADCNR, 2016d and 2016e).

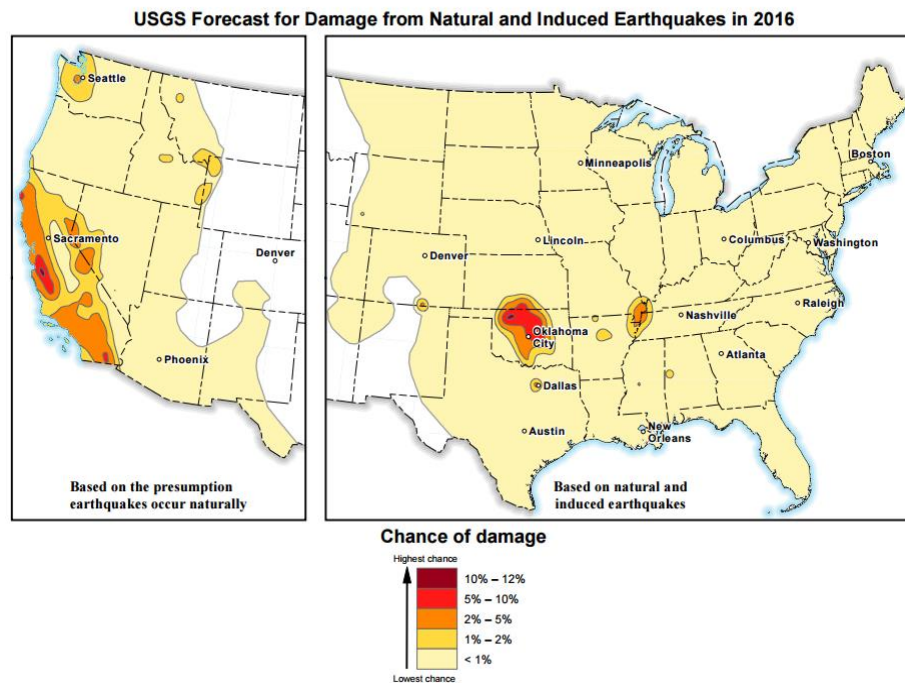
### Seismic Activity

The seismic hazard for McKean and Elk Counties, Pennsylvania is between four and eight and is, therefore, generally regarded as low. This is based on a two percent probability of exceedance in 50 years of peak ground acceleration. The hazard rating system ranges from zero through 80+, where zero indicates the lowest hazard and 80+ indicates the highest hazard [United States Geological Survey (USGS), 2014]. Also, no known Quaternary faults (i.e., faults that are found at the Earth's surface and younger than 1.6 million years) have been found near the ***special permit segment*** area (USGS, 2016a).

The ***special permit segment*** is located within an area with a less than one percent chance of damage from natural and induced earthquakes. The PADCNR's Earthquake Epicenter Map of Pennsylvania displays natural and artificial seismic events that have been recorded in and near Pennsylvania over the past 300 years; there are no mapped earthquake epicenters within the ***special permit segment*** (PADCNR, 2004). Therefore, earthquakes are not anticipated to be a geologic hazard to the ***special permit segment*** activities as shown in Figure 1.



**Figure 1. USGS Forecast for Damage from Natural and Induced Earthquakes 2016**



Notes:

- 1 Map displays the potential to experience damage from natural or human-induced earthquakes in 2016. Chances range from less than 1 percent to 12%. The Project area is located within the less than 1% range.
- 2 United States Geological Survey (USGS). 2016b. Forecast for Damage from Natural and Induced Earthquakes in 2016. <https://earthquake.usgs.gov/hazards/induced/>. Accessed November 2016.

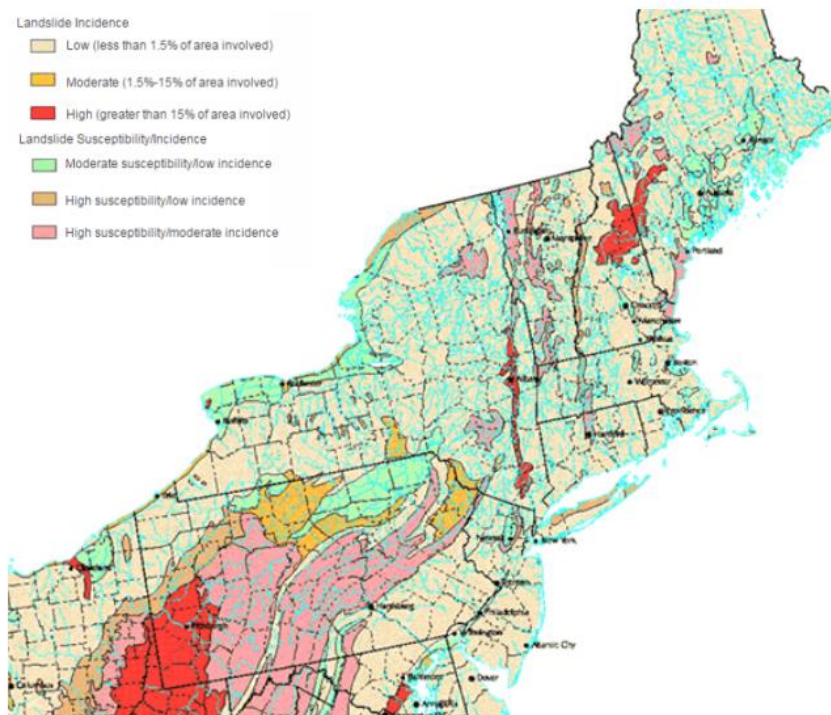
**Landslides**

The ***special permit segment*** will cross areas with moderate to high susceptibility for landslides, but the majority of the ***special permit segment*** area contains low incidence. Based on local data (United States Department of Agriculture - Natural Resources Conservation Service, 2016), erosion hazards within the Project area are rated as slight to moderate under ordinary climatic conditions as shown in Figure 2. These designations are based primarily on degree of slope and soil type. Aerial and foot reconnaissance, as well as the 70 + years of operating history of the existing pipelines have indicated that landslides are not and have not historically been an issue at the location of the ***special permit segment***. One abandoned mine was found to intersect the ***special permit segment*** between MP 2.74 and MP 2.89. Areas within the mine have since been reclaimed and the area has

been abandoned.

NFG will be prepared to implement mitigation, in accordance with 49 CFR 192.317, during construction in areas of high landslide potential, including areas that may contain liquefied soils, steep slopes, and/or high-water tables on a site-specific basis by decreasing the spacing of trench and slope breakers and/or adding drain tiles, if appropriate. The insertion method itself serves as a substantial mitigation step as it would require 38.9 acres less of disturbance than the open-cut method which would result in less likelihood for disturbing existing stable slopes and creating potential landslides because of construction activities.

**Figure 2. Landslide Overview Map of the Conterminous United States - Northeast<sup>1</sup>**



Note:

- 1 USGS. 1982. Landslide Overview Map of the Conterminous United States: Northeast  
<http://landslides.usgs.gov/hazards/nationalmap/index.php> Accessed November 2016

### *Subsidence/Karst*

Subsidence involves the downslope movement of earth materials under a force of gravity due to natural or manmade causes. Risk of land subsidence is based on a variety of factors, including past mining operations, karst formations, evaporate rock formations, and expansive soils.

Karst features such as sinkholes, caves, and caverns can form because of the long-term action of groundwater on soluble carbonate rocks (e.g., limestone and dolostone). The ***special permit segment*** is not located in an area with karst formations such as sinkholes or surface depressions (Kochanov, 2015; PADCNr, 2016f).

NFG routinely inspects the pipeline ROW, which will provide the necessary monitoring in the unlikely event karst features or subsidence develops under the pipelines. If observations indicating subsidence are found, NFG will take the appropriate corrective measures to maintain the integrity of the pipelines. These measures include determining the allowable stresses on unsupported pipe spans, importing fill for pipe support, and evaluating whether recurrence is likely. If it is determined that recurrence is likely, NFG would evaluate the potential of relocating the pipeline.

## **10. *Indian Trust Assets:***

### *Native American Consultation*

To comply with the Federal Energy Regulatory Commission's regulations under 18 CFR 380.12(f)(1)(i) and (v), and in compliance with Section 106 regulations at 36 CFR 800.2(c)(2), GAI Consultants, Inc., on behalf of NFG, identified Native American tribes with a potential interest in the ***special permit segment***. The ***special permit segment*** does not occur within properties defined as Native American reservation or tribal lands; however per the Federal Energy Regulatory Commission's Guidelines for Reporting on Cultural Resources Investigations for Natural Gas Projects (July 2017), the tribes listed below may currently or historically have occupied or used the area, regardless of where they currently reside, or are known to attach religious or cultural significance to historic properties that may be affected by the Project. On January 19, 2017, NFG sent a letter providing information on the ***special permit segment*** to the following tribes:

- Absentee-Shawnee Tribe of Indians of Oklahoma;
- Delaware Nation;
- Delaware Tribe of Indians;
- Eastern Shawnee Tribe of Oklahoma;
- Seneca Nation of Indians;
- Seneca-Cayuga Tribe of Oklahoma;
- Shawnee Tribe;
- St. Regis Mohawk; and
- Tonawanda Band of Seneca Indians of New York.

A response was received from the Delaware Tribe Historic Preservation Office (HPO) on February 16, 2017, requesting further information regarding the *special permit segment* location. Information was provided to Delaware Tribe HPO about the *special permit segment* on February 21, 2017. No additional correspondence with any tribe listed above has been received to date.

#### 11. **Land Use:**

The existing land use within the *special permit segment* is the primarily dominated by forested woodlots, oil and natural gas facilities, and limited seasonal camps and residences adjacent to the existing pipeline right-of-way (ROW). The topography throughout most of the *special permit segment* vicinity consists of broad rolling uplands punctuated with moderate slopes, as well as more limited low terrace and floodplain settings along second and third order streams.

The land use will not be changed as a result of either construction method, conventional open-cut or insertion method, since the FM120 Pipeline route is located within an existing pipeline ROW. However, the insertion method for construction of the FM120 Pipeline would require approximately 38.9 acres less of temporary disturbances to the existing land use than the conventional open-cut method.

### Planned Residential and Commercial Areas

NFG has initiated consultation with a variety of federal, state, county, local agencies, and landowners to identify potential constraints in the Project area. To the extent practicable, an emphasis was placed on avoiding or minimizing potential impacts, including those associated with residential or commercial/industrial development, which is already limited for much of the Project area due to the route through public owned land of the Elk State Forest. At present, Jones Township, Hamlin Township, and Shippen Township were not aware of planned developments within 0.25-mile of the Project (Storror, 2016; Sluga, 2016; and Ramsey, 2016).

Neither options of construction, conventional open-cut nor insertion method, would have a significant effect on residential, or commercial/industrial developments.

### Existing Residences and Buildings

The 5.84-mile ***special permit segment*** route can generally be classified as very rural and sparsely populated with 21 identified structures that are intended for occupancy and 5 unoccupied structures within 660 feet of the pipeline. Construction along the pipeline is primarily located in or adjacent to existing ROW and within forested areas, however, a section of the FM120 Pipeline is within 50 feet of a residence identified as a private hunting camp. NFG will implement the following mitigation for residences within 50 feet of the construction work area where applicable:

- construction activities will generally occur during daytime hours wherever feasible;
- mature trees and landscaping should not be removed from within the construction work area unless necessary for the safe operation of construction equipment;
- immediately after backfilling, all lawn areas and landscaping within the construction work area should be restored consistent with the requirements of the Federal Energy Regulatory Commission's Upland Erosion Control, Revegetation, and Maintenance Plan

<https://www.ferc.gov/industries/gas/enviro/guidelines.asp?csrt=13858989306843499>  
924;

- the edge of the construction work area adjacent to the residence will be fenced for a distance of 100 feet on either side of the residence to ensure that construction

equipment and materials, including the spoil pile, remain within the construction work area; and

- Fencing will be maintained, at a minimum, throughout the open trench phases of pipe installation.

Landowners affected by construction activities will be notified prior to construction by NFG representative land agents. There are no displacements of homes or business expected to occur as a result of either construction activity. The insertion method of the FM120 Pipeline will not require earth disturbance activities near the private hunting camp, whereas the conventional open-cut method would cause additional noise, aesthetics, and traffic concerns for the landowner associated within this property.

#### Public or Conservation Land

The existing FM120 Pipeline is primarily within the Elk State Forest. The *special permit segment* will not impact any national wildlife refuges, Native American reservations, nature preserves, national parks, national trails, national historic landmarks, national natural landmarks, or levee crossings (United States Fish and Wildlife Service, 2016; Wilderness.net, 2016; National Park Service, 2016; Natural Land Trust, 2016; National Park Service, 2017a; North County Trail Association, undated; National Park Service, 2016; National Park Services, 2017b; and United States Army Corps of Engineers, 2015). The FM120 Pipeline does not cross local parks [PA Department of Conservation and Natural Resources (PADCNR), undated a; and PADCNR, undated b].

NFG has ongoing coordination with PADCNR Bureau of Forestry (BOF) for construction and access within the Elk State Forest pursuant to a Right-of-Way Agreement. The insertion method will require approximately 11.2 acres whereas the conventional open-cut method would require 46.544.1 acres of land disturbances within the Elk State Forest. Construction of FM120 Pipeline within the Elk State Forest will result in less disturbances to the natural environment as well as interference with recreational use by utilizing the insertion method.

12. **Noise**: Noise levels associated with operation of the pipeline/FlexSteel facilities will not change as part of this special permit. Noise levels associated with construction of the facilities will be much lower in the case of a FlexSteel insertion as compared to an open cut

installation due to the greater construction activity associated with the latter process, as described in greater detail above.

### 13. **Recreation:**

#### *Natural, Recreational, or Scenic Areas*

The ***special permit segment*** does not cross any National Wild and Scenic Rivers (National Wild and Scenic Rivers System, 2016). The ***special permit segment*** does not cross natural, recreational, scenic areas or registered natural landmarks identified by the Nationwide Rivers Inventory river segments (National Park Service, 2009).

As described above, the ***special permit segment*** crosses the Elk State Forest, which is utilized for recreation activities. The Elk State Forest is considered a “working forest,” utilized for habitat conservation, watershed protection, and sustainable timber and natural gas extraction.

### 14. **Socioeconomics:**

Based on U.S. Census Bureau data, Table 3 below shows the Economic Characteristics for 2011 – 2015 American Community Survey 5-Year Estimates for Sergeant Township, McKean County, Pennsylvania. As seen in Table 3 Sergeant Township has a large swing of economic levels and does not have a clear majority in any of the defined brackets.

<b>Table 3: INCOME AND BENEFITS (IN 2015 INFLATION-ADJUSTED DOLLARS)</b>				
	Estimate	Margin of Error	Percent	Percent Margin of Error
Total households	81	+/-21	81	(X)
Less than \$10,000	7	+/-6	8.6%	+/-7.2
\$10,000 to \$14,999	5	+/-7	6.2%	+/-8.5
\$15,000 to \$24,999	11	+/-8	13.6%	+/-10.0
\$25,000 to \$34,999	6	+/-7	7.4%	+/-8.8
\$35,000 to \$49,999	9	+/-8	11.1%	+/-10.0
\$50,000 to \$74,999	19	+/-10	23.5%	+/-11.7
\$75,000 to \$99,999	11	+/-9	13.6%	+/-10.5
\$100,000 to \$149,999	9	+/-8	11.1%	+/-9.7
\$150,000 to \$199,999	2	+/-2	2.5%	+/-3.2
\$200,000 or more	2	+/-4	2.5%	+/-4.8
Median household income (dollars)	55,625	+/-32,075	(X)	(X)
Mean household income (dollars)	64,298	+/-19,976	(X)	(X)

The Project is not considered a major aboveground facility or a major pipeline project, and does not have a major impact on permanent employment, housing, local government services, local tax revenues, transportation, or other related socioeconomic conditions.

**15. Topography:**

The topography throughout most of the Project vicinity consists of broad rolling uplands punctuated with moderate slopes, as well as more limited low terrace and floodplain settings along second and third order streams. As discussed above there will be limited amount of ground disturbance associated with the insertion method as compared to open-cut methods. Under both the selected action and the no action alternative, any disturbed areas will be finished and restored to original grade/ contour and vegetative state.

**16. Transportation:**

This Project will be accessed via existing permeant access roads and will not require any additional roads to be constructed nor additional maintenance.

**17. Water Resources:**

Wetlands

The insertion method will be less invasive when crossing wetlands and all impacts will be temporary and allowed to restore to pre-construction conditions. The insertion method will cross a total of 15 Palustrine Emergent (PEM) wetlands with temporary impacts totaling 0.26 acres. Whereas, the conventional open-cut method under the no action alternative would cross a total of 33 wetlands and would require temporary impacts 4.10 acres of PEM wetland and 0.23 acres to Palustrine Unconsolidated Bottom (PUB) wetlands.

Additionally, some of the wetlands within the Project area are considered Exceptional Value (EV) status as per 25 Pa Code § 105.17 (iii). A total of 15 of the 33 wetlands crossed by the conventional open-cut method are considered to have EV status. The insertion method would cross only four wetlands considered as EV protection status.

As described above, the insertion method would be less invasive when crossing wetlands and would cross less wetlands considered as EV than the conventional open-cut method of



construction, and any impacts would be temporary in nature.

### Waterbodies

Waterbodies within the Project area are in delineated watershed basins: Marvin Creek (hydrologic unit code 12: 050100010103) and East Branch Clarion River - East Branch Lake Dam (hydrologic unit code 12: 050100050101) which drain into the Ohio River Drainage Basin or the Susquehanna River Basin (PA Association of Conservation Districts, 2007). No state-designated or locally-designated water protection areas are crossed by the Project.

The Project is not located within areas of potential contaminated aquatic bed sediments (USEPA, 2004).

The pipeline insertion method would cross six streams whereas the no action alternative (open cut construction) would cross 12 streams. Per Pennsylvania Title 25 Chapter 93, which sets forth water quality standards for surface waters, the pipeline insertion would cross streams designated as High Quality and Cold-Water Fishes. Bell holes and push/pull points are not proposed within streams. Five (5) streams will be crossed to access the bell holes and push/pull points and in-stream work will occur within one stream, located at Mile Post 4.45, where pipe is currently exposed. Approximately 100 feet of pipe will be re-laid to achieve the required depth and cover. The no action alternative would cross streams designated as High Quality and Cold-Water Fishes, as well as existing use classifications of EV and Migratory Fish. These streams would be crossed via damp and pump/flume or open cut if at the time of the construction no flow is present. The no action alternative would not only cross more streams, but would require in-stream disturbance during construction.

Additional requirements for anti-degradation, such as performance standards for erosion and sediment control, are required for the streams crossed by both the pipeline insertion and no action alternative. Additional requirements for anti-degradation are approved as part of the Erosion and Sediment Control Permit issued by the Pennsylvania Department of Environmental Protection (PaDEP).

### Groundwater Resources

Sandstone and shale aquifers in the *special permit segment* area typically yield groundwater from wells at depths within 80 to 200 feet from the surface (PA State University, 2016). The no action alternative will generally require trenching up to a depth of five feet to install the pipeline. The pipeline insertion will require a bell hole depth of approximately three to four feet to reach the existing pipeline. Because the depth to groundwater throughout the *special permit segment* is significantly greater than trenching depth or the bell hole depth, aquifers will not be subject to direct impacts from the pipeline insertion or the no action alternative. NFG will implement BMPs in addition to the procedures outlined in NFG's Erosion and Sedimentation Control and Agricultural Mitigation Plan and Project-specific Erosion and Sediment Control Plan to protect groundwater resources.

In addition, no state designated primary aquifers or designated Sole Source Aquifers to the United States Environmental Protection Agency (USEPA) are located in the *special permit segment* (USEPA, 2017).

### Water Supply Wells

One domestic well (identifier – 126983) was identified within 150 feet of the construction site for both the pipeline insertion and no action alternative (PA Groundwater Information System, 2016g). Neither the Project nor the no action alternative crosses public water service areas, well head protection areas, or source water protection areas (PaDEP, 2016a; 2000; and 2013a). According to USEPA's Safe Drinking Water Information System database (2013) in combination with a review PaDEP's eMapPA, no public drinking water surface water intakes are located within three miles downstream of waterbody crossings.

No blasting will occur as part of this Project. The drinking water well within 150 feet of the *special permit segment* construction will be evaluated through pre-construction testing where permitted by the landowner. Post construction testing will be conducted at the request of landowners.

## **X. Consultation and Coordination**

NFG and PHMSA personnel involved in preparation of this document include: Please list the name, title and company of any person involved in the preparation of this document.

- Joshua Arnold, PHMSA, Engineer
- Amelia Samaras, PHMSA, Attorney
- Steve Nanney, PHMSA, Engineer
- Jeff Kittka, Vice President, National Fuel Gas Supply Corporation
- Mike Barber, General Manager, National Fuel Gas Supply Corporation
- Steve Glass, Senior Engineer II, National Fuel Gas Supply Corporation
- Josh Sabo, Engineer II, National Fuel Gas Supply Corporation
- Wayne Graham, Environmental Compliance Manager, National Fuel Gas Supply Corporation
- Randy Rucinski, Deputy General Counsel, National Fuel Gas Supply Corporation
- Angela Lundy, Environmental Manager, GAI Consultants

NFG held a landowner open house on September 20, 2017, at the American Legion in Mt. Jewett Pennsylvania, in which the plans and anticipated timing of this Project were discussed. Seven (7) landowners attended and signed in at the meeting held by NFG.

## **XI. Response to Public Comments Placed on Docket**

PHMSA published a Notice of Availability in the Federal Register (FR) on June 26, 2019, for a special permit request from NFG to use approximately 5.84 miles of FlexSteel pipe (a high-density polyethylene (HDPE) inner and outer layer with a helically wound steel core) instead of steel pipe. PHMSA requested comment on the draft special permit conditions and the draft environmental analysis. The FR notice was published at 84 FR 30308. The public notice comment period ended on July 26, 2019, with no comments received through July 26, 2019.

## **XII. Finding of No Significant Impact**

In consideration of the safety conditions explained above, PHMSA finds that no significant negative safety or environmental impact will result from the issuance and full implementation of the above-described special permit to waive the requirements of 49 CFR 192.53, 192.55, 192.105, 192.107, 192.109, 192.111, 192.113, 192.144, 192.149, 192.150, 192.327, 192.463, and 192.619 for *special permit segment*, which consists of 5.84 miles of 6-inch diameter FM120 Pipeline located in McKean and Elk Counties, Pennsylvania. This permit will require NFG to implement additional conditions on the operations, maintenance, and integrity management of the *special permit segment*.

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## Attachment 1 – FM120 Pipeline Overview Map

