U.S. DEPARTMENT OF TRANSPORTATION

PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION

FINAL ENVIRONMENTAL ASSESSMENT and FINDING OF NO SIGNIFICANT IMPACT

Special Permit Information:

Docket Number:	PHMSA-2022-0084
Requested By:	Columbia Gulf Transmission, LLC
Operator ID#:	2620
Original Date Requested:	June 22, 2022
Issuance Date:	June 30, 2023
Code Sections:	49 CFR 192.611(a) and (d) and 192.619(a)

I. Background

The National Environmental Policy Act (NEPA), 42 United States Code (USC) 4321 – 4375 et seq., Council on Environmental Quality Regulations, 40 Code of Federal Regulation (CFR) 1500-1508, and U.S. Department of Transportation (DOT) Order No. 5610.1C, requires the Pipeline and Hazardous Materials Safety Administration (PHMSA) Office of Pipeline Safety (OPS)[1] to analyze a proposed 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 Federal Pipeline Safety Regulations. PHMSA's environmental review associated with the special permit application is limited to impacts that would result from granting or denying the special permit. PHMSA

[1] Throughout this special permit 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.

developed this assessment to determine what effects, if any, our decision would have on the environment.

Pursuant to 49 USC 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 NEPA for the Columbia Gulf Transmission, LLC (CGT)[2] application for a special permit request to waive compliance with the requirements of 49 CFR 192.611(a) "Change in class location: Confirmation or revision of maximum allowable operating pressure" for approximately 7.815 miles of 30-inch and 36-inch diameter gas transmission pipelines located in Kentucky. This FEA and finding of no significant impact (FONSI) is prepared by PHMSA to assess the pipeline special permit request, in accordance with 49 CFR 190.341, and is intended to specifically analyze any environmental impact associated with the waiver of 49 CFR 192.611(a) and (d) and 192.619(a).

II. Introduction

Pursuant to 49 USC 60118(b) and 49 CFR 190.341, CGT submitted an application for a special permit to PHMSA on June 22, 2022, requesting that PHMSA waive the requirements of 49 CFR 192.611(a) to permit CGT to maintain the maximum allowable operating pressure (MAOP) of seven (7) ***special permit segments*** located in in Madison County, Kentucky, for which the class location has changed from Class 1 to Class 3 due to population density increase. Without the special permit, 49 CFR 192.611(a) would require CGT to replace the seven (7) ***special permit segments*** or reduce pipeline MAOP.

PHMSA is granting a special permit to waive certain regulatory requirements where it is consistent with pipeline safety and which is typically contingent on the performance of additional measures beyond minimum PHMSA pipeline safety regulations, in accordance with 49 CFR 190.341.

[2] CGT is a wholly owned subsidiary of TC Energy, Inc.

III. Regulatory Background

PHMSA regulations at 49 CFR 192.611(a) require that an operator confirm or revise the MAOP of a pipe segment that is in satisfactory condition when the hoop stress of the segment is no longer commensurate with class location. Under 49 CFR 192.611(a), an operator may be required to reduce the operating pressure of a pipe segment, or alternatively, may have to replace the pipe in order to maintain the MAOP. Below is the relevant text of 49 CFR 192.611(a):

49 CFR 192.611 Change in class location: Confirmation or revision of maximum allowable operating pressure.

(a) If the hoop stress corresponding to the established maximum allowable operating pressure of a segment of pipeline is not commensurate with the present class location, and the segment is in satisfactory physical condition, the maximum allowable operating pressure of that segment of pipeline must be confirmed or revised according to one of the following requirements:

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

(i) The maximum allowable operating pressure is 0.8 times the test pressure in Class 2 locations, 0.667 times the test pressure in Class 3 locations, or 0.555 times the test pressure in Class 4 locations. The corresponding hoop stress may not exceed 72 percent of the SMYS of the pipe in Class 2 locations, 60 percent of SMYS in Class 3 locations, or 50 percent of SMYS in Class 4 locations.

(ii) The alternative maximum allowable operating pressure is 0.8 times the test pressure in Class 2 locations and 0.667 times the test pressure in Class 3 locations. For pipelines operating at alternative maximum allowable pressure per §192.620, the corresponding hoop stress may not exceed 80 percent of the SMYS of the pipe in Class 2 locations and 67 percent of SMYS in Class 3 locations.

(2) The maximum allowable operating pressure of the segment involved must be reduced so that the corresponding hoop stress is not more than that allowed by this part for new segments of pipelines in the existing class location.

3) The segment involved must be tested in accordance with the applicable requirements of subpart J of this part, and its maximum allowable operating pressure must then be established according to the following criteria:

(i) The maximum allowable operating pressure after the requalification test is 0.8 times the test pressure for Class 2 locations, 0.667 times the test pressure for Class 3 locations, and 0.555 times the test pressure for Class 4 locations.

(ii) The corresponding hoop stress may not exceed 72 percent of the SMYS of the pipe in Class 2 locations, 60 percent of SMYS in Class 3 locations, or 50 percent of SMYS in Class 4 locations.

(iii) For pipeline operating at an alternative maximum allowable operating pressure per §192.620, the alternative maximum allowable operating pressure after the requalification test is 0.8 times the test pressure for Class 2 locations and 0.667 times the test pressure for Class 3 locations. The corresponding hoop stress may not exceed 80 percent of the SMYS of the pipe in Class 2 locations and 67 percent of SMYS in Class 3 locations.

(d) Confirmation or revision of the maximum allowable operating pressure that is required as a result of a study under §192.609 must be completed within 24 months of the change in class location. Pressure reduction under paragraph (a) (1) or (2) of this section within the 24-month period does not preclude establishing a maximum allowable operating pressure under paragraph (a)(3) of this section at a later date.

49 CFR 192.619 What is the maximum allowable operating pressure for steel or plastic pipelines?

(a)(2)(ii) For steel pipe operated at 100 p.s.i. (689 kPa) gage or more, the test pressure is divided by a factor determined in accordance with the following table:

Table 1 to Paragraph (a)(2)(ii)

Class location	Factors, [1] segment - Installed before (Nov. 12, 1970)	Installed after (Nov. 11, 1970) and before July 1, 2020	Installed on or after July 1, 2020	Converted under § 192.14
1	1.1	1.1	1.25	1.25
2	1.25	1.25	1.25	1.25
3	1.4	1.5	1.5	1.5
4	1.4	1.5	1.5	1.5

[1] For offshore pipeline segments installed, uprated or converted after July 31, 1977, that are not located on an offshore platform, the factor is 1.25. For pipeline segments installed, uprated or converted after July 31, 1977, that are located on an offshore platform or on a platform in inland navigable waters, including a pipe riser, the factor is 1.5.

(3) The highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column. This pressure restriction applies unless the segment was tested according to the requirements in paragraph (a)(2) of this section after the applicable date in the third column or the segment was uprated according to the requirements in subpart K of this part:

- Which requires Class 3 location pipe to be pressure tested to 1.5 times MAOP

IV. Purpose and Need

CGT requested a special permit as an alternative to replacing 7.815 miles of 7 ***special permit segments*** located in the Columbia Gulf Mainline in the CGT system. The special permit enables CGT to avoid the cost of pipe replacement and methane emissions associated with blowdown of the pipeline, along with the interruption of service to CGT's customers

As PHMSA recognized in its June 29, 2004, Criteria for Class Location Change Waivers, implementing additional preventative and mitigative measures enables a pipeline operator to improve its knowledge and understanding of the pipeline's integrity, accelerate the identification and repair of actionable anomalies, and better manage and mitigate threats to the public and environment. Implementing enhanced inspection and assessment practices throughout the ***special permit segments*** and ***special permit inspection areas***, in lieu of replacing small segments of pipe experiencing the class location change, extends pipeline safety benefits to a much greater area along the pipeline. In addition, avoiding pipe excavation and replacement will avoid delivery interruptions and supply shortages, and construction-related environmental disruption, including the release of methane, a potent greenhouse gas. All these benefits will be realized under CGT's requested special permit. CGT requests a special permit to provide relief from the requirements for pressure reduction or pipe replacement specified in 49 CFR 192.611(a) for the seven (7) ***special permit segments***.

The special permit allows CGT to maintain the current MAOP for the seven (7) ***special permit segments*** for which the class location has changed from Class 1 to Class 3 due to population density increase. Without the special permit, 49 CFR 192.611(a) would require CGT to replace the seven (7) ***special permit segments*** or maintain the reduced pipeline MAOP. **Attachments A1** – **A7** are general maps that includes the pipeline route showing the ***special permit segments*** and ***special permit inspection areas***.

PHMSA is granting the special permit, which includes conditions, for the 41,265.00 feet (approximately 7.815 miles) of ***special permit segments*** and the 223.68 miles of ***special permit inspection areas***. The special permit allows CGT in the event of future class changes within the ***special permit inspection areas*** (***special permit segment extensions***), if the ***special permit segment extensions*** meet the special permit conditions applicable to the ***special permit segment***.

V. Site Description

The special permit waives compliance from 49 CFR 192.611(a) for approximately 7.815 miles of natural gas transmission pipeline on the 30-inch and 36-inch diameter pipelines, where the class location of the lines changed from Class 1 to Class 3 location in Madison County, Kentucky.

This special permit allows CGT to maintain the current MAOP of 935 psig and 1,007 psig in the ***special permit segments*** as shown in **Table 1 – Special Permit Segments**.

Special Permit Segments:

This special permit applies to the ***special permit segments*** in **Table 1 – Special Permit Segments** and are identified using the CGT survey station (SS) references.

Table 1 – Special Permit Segments

Special Permit Segment Number	Outside Diameter (inches)	Line Name	Length (feet)	Start Station (SS)	End Station (SS)	County, State	No. Dwellings	Year Installed[3]	Seam Type	MAOP (psig)
1	30	ML100	6,600	2618+00	2684+00	Madison County, KY	69	1954	DSAW	935
2	30	ML200	6,500	2620+00	2685+00	Madison County, KY	69	1963	DSAW	1,007
3	36	ML300	7,450	2608+50	2683+00	Madison County, KY	69	1970	DSAW	1,007
4	36	ML300	165	2853+40	2855+05	Madison County, KY	1	1970	DSAW	1,007
5	30	ML100	6,800	3219+00	3287+00	Madison County, KY	47	1954	DSAW	935
6	30	ML200	6,850	3221+50	3290+00	Madison County, KY	47	1963	DSAW	1,007
7	36	ML300	6,900	3218+00	3287+00	Madison County, KY	47	1970	DSAW	1,007

Notes: **DSAW** is a double submerged arc welded pipe longitudinal seam

Special Permit Inspection Area:

The ***special permit inspection area*** is defined as the area that extends 220 yards on each side of the centerline as listed in **Table 2 – Special Permit Inspection Area**.

Table 2 – Special Permit Inspection Areas

Special Permit Inspection Area Number	Special Permit Segment(s) Included	Outside Diameter (inches)	Line Name	Start Station (SS)	End Station (SS)	Length[4] (miles)
1	1,5	30	ML100 - Clementsville to Kentucky River	10+58	3374+89	63.7
2	2, 6	30	ML200 - Clementsville to Stanton	12+23	4232+00	79.9
3	3, 4, 7	36	ML300 - Clementsville to Stanton	0+58	4226+74	80.0

[3] The Columbia Gulf Mainline pipeline system is predominantly coated with Coal Tar Enamel.

[4] If the ***special permit inspection area*** footage does not extend from launcher to receiver, then the ***special permit inspection area*** would need to be extended.

The ***special permit inspection areas*** are in Madison, Casey, Estill, Lincoln, Powell, and Garrard Counties, Kentucky.

3) **High Consequence Areas:**

HCAs located in the ***special permit inspection areas*** are at the following survey stations:

Table 3 – High Consequence Areas

Special Permit Inspection Area Number	HCA ID	Begin Station (SS)	End Station (SS)	Length (miles)
1	GULF-1566	1411+28	1435+49	0.46
	GULF-1567	1681+50	1711+11	0.56
	GULF-18	2733+53	2772+35	0.74
	GULF-17	2782+81	2827+78	0.85
	GULF-15	3234+22	3252+75	0.35
2	GULF-159	1412+29	1434+14	0.41
	GULF-1576	1677+73	1707+78	0.57
	GULF-1577	2574+39	2593+15	0.36
	GULF-158	2732+08	2773+85	0.79
	GULF-157	2782+07	2829+29	0.89
	GULF-1578	3155+40	3177+53	0.42
	GULF-155	3235+40	3254+91	0.37
	GULF-1579	3984+95	4017+51	0.62
3	GULF-115	2602+29	2632+65	0.58
	GULF-116	2726+47	2830+97	1.98
	GULF-117	2974+30	2996+85	0.43
	GULF-118	3224+09	3255+39	0.59
	GULF-119	3892+00	3914+77	0.43
	GULF-120	4189+99	4226+15	0.68

The purpose of the special permit is to waive the requirements of 49 CFR 192.611(a), allowing CGT to maintain the existing MAOP and implement special permit conditions for the 7.815 miles of pipelines without having to replace existing pipe in the ***special permit segments***.

PHMSA is granting this special permit based on this document and the "Special Permit Analysis and Findings" (SPAF) document, which can be read in its entirety in Docket No. PHMSA-2022-0084 in the Federal Docket Management System (FDMS) located on the internet at www.regulations.gov.

VI. Alternatives

1) Alternative 1: No Action Alternative

Denial of the special permit would require CGT to comply with 49 CFR 192.611(a). In order to maintain the existing MAOP, CGT would be required to either replace the 7.815 miles of pipe in the ***special permit segments*** or reduce pressure within the segments. As between these options, CGT would choose to replace the ***special permit segments*** to maintain MAOP because a pressure reduction would prevent it from meeting its contractual obligations to deliver natural gas to its customers. Replacing the pipe would cause service interruptions and create construction-related environmental impacts, including the release of methane, a known greenhouse gas.

2) Alternative 2: Selected Alternative

PHMSA is selecting this alternative and will issue the special permit allowing CGT to continue to operate at the current MAOPs of 935 pounds per square inch gauge (psig) (ML 100), 1,007 psig (ML 200), and 1,007 psig (ML 300) in the Class 3 locations without replacing pipe while complying with the special permit conditions.

VII. Overview of Special Permit Conditions

To provide an equivalent level of safety in the absence of either lowering the pipeline operating pressure or upgrading the pipe, this special permit has additional operations and maintenance requirements (conditions) which are intended to decrease the likelihood of a release of gas. PHMSA believes that these additional measures designed to prevent leaks and ruptures will ensure that the Special Permit is not inconsistent with pipeline safety. This section provides an overview of the special permit conditions. For CGT specific technical requirements, the special permit with conditions granted to CGT for Docket No. PHMSA-2022-0084 can be found the Federal Dockets Management System (FDMS) located on the internet at www.regulations.gov or on the PHMSA website for special permits issued at https://www.phmsa.dot.gov/pipeline/special-permits-state-waivers/special-permits-issued.

1) Current Status of Pipe in the Ground

To ensure that key characteristics of the pipe currently installed in each ***special permit segment*** is known, records that confirm pipe specifications, successful pressure tests, and girth weld non-destructive tests are required. Should records be unavailable or unacceptable, additional activities as

detailed in the special permit must be completed. If these additional activities are not completed or should pipe be discovered that does not meet specific requirements of eligibility, the ***special permit segment*** must be replaced.

2) **Operating Conditions**

The ***special permit inspection areas*** must continue to be operated at or below the existing maximum allowable operating pressure (MAOP) until a restoration or uprating plan has been approved, if allowed by the special permit. To ensure compliance with special permit conditions, the operator's Operations and Maintenance Manual (O&M), Integrity Management (IM) Program, and Damage Prevention (DP) program must be modified to implement the special permit conditions. In addition, PHMSA must approve any long-term flow reversals that would impact ***special permit segment(s)***.

3) **Threat Management**

Threats are factors that can lead to the failure of a pipeline. Activities are required to identify, assess, remediate, and monitor threats to the pipeline.

a) **General activities.** CGT must perform annual data integration and identification of threats to which the ***special permit inspection area*** is susceptible. These activities must include integrity assessments with specific inline inspection tools, strict anomaly repair criteria, and appropriate environmental assessment and permitting. Additional integrity assessment methodologies may be used if allowed by the special permit. Integrity assessments must then be conducted periodically at an interval determined in the special permit for each threat identified.

b) **External corrosion control requirements.** The special permit requires additional activities to monitor and mitigate external corrosion. These activities include installation and annual monitoring of cathodic protection (CP) test stations, periodic close interval surveys (CIS), and clearing or remediating shorted casings that may impede CP effectiveness. These activities ensure the appropriate level of CP is reaching the pipeline in areas where coating loss or damage has occurred in order to prevent or mitigate external corrosion. In addition, the CGT is required to develop and implement a plan that identifies and remediates interference from alternating or direct current (AC/DC) sources (such as high-voltage powerlines) that could adversely impact the effectiveness of CP.

c) **Internal corrosion control requirements.** The special permit includes gas quality specifications to mitigate internal corrosion because internal corrosion is highly dependent on the quality of the gas transported within the pipeline.

d) **Stress corrosion cracking (SCC) requirements.** To ensure that SCC is discovered and remediated, any time a pipe segment is exposed during an excavation the permit holder must examine coating to determine type and condition. If the coating is in poor condition, the permit holder must conduct additional SCC analysis. If SCC is confirmed, CGT must implement additional special permit defined remediation and mitigation.

e) **Pipe seam requirements.** The CGT must perform an engineering integrity analysis to determine susceptibility to seam threats. The CGT must re-pressure test any ***special permit segments*** with an identified seam to ensure the issue is not systemic in nature.

f) **External pipe stress requirements.** Upon identification of any source of external stress on the pipeline (such as soil movement), the CGT must develop procedures to evaluate and periodically monitor these stresses.

g) **Third-party specific requirements.** To assist in identifying the pipeline location and minimizing the chance of accidental pipeline strikes, CGT must install and maintain line-of-site markers for the pipeline. CGT must perform mitigation activities for any location where a depth-of-cover survey shows insufficient soil cover.

4) **Consequence Mitigation**

To ensure quick response and decreased adverse outcome in the event of a failure, each side (upstream and downstream) of the ***special permit segment*** must have and maintain operable automatic shutdown valves (ASV) or remote-controlled valves (RCV). CGT must monitor valves through a control room with a supervisory control and data acquisition (SCADA) system. In addition to the mainline valves, should a crossover or lateral connect between the valve locations, additional isolation valves may be required.

5) **Post Leak or Failure**

Should an in-service leak occur in the ***special permit inspection area,*** the leak must be graded and remediated as required in the permit. In addition, for all in-service or pressure test leak/failure(s), CGT must conduct a root cause analysis to determine the cause. If the cause is determined to be

systemic in nature, the permit holder must implement a remediation plan or the ***special permit segment*** must be replaced, as determined by the special permit specific conditions.

6) **Class Location Study and Potential Extension of Special Permit Segment**

The permit holder must conduct a class location study at an interval specified in the special permit. This allows the permit holder to quickly identify extended locations that must comply with the ***special permit segment*** requirements. CGT may extend a ***special permit segment*** with proper notification, update of the FEA, and implementation of all requirements in the special permit.

7) **PHMSA Oversite and Management**

PHMSA maintains oversight and management of each special permit. This includes annual meetings with executive level officers on special permit implementation status, written certification of the special permit, special permit required notification of planned activities, notification of root cause analysis results, and notification prior to certain excavation activities so that PHMSA may observe.

8) **Gas Leakage Surveys and Remediation**

The ***special permit segment*** and ***special permit inspection area*** have requirements in the special permit to conduct leakage surveys more frequently than is presently required in 49 CFR 192.706. Gas leakage surveys using instrumented gas leakage detection equipment must be conducted along each ***special permit segment*** and at all valves, flanges, pipeline tie-ins with valves and flanges, ILI launcher, and ILI receiver facilities in each ***special permit inspection area*** at least twice each calendar year, not to exceed 7½ months. The type of leak detection equipment used, survey findings, and remediation of all instrumented gas leakage surveys must be documented by operator. The special permit will require a three-step grading process with a time interval for remediation based upon the type of leak.

9) **Documentation**

The special permit holder must maintain documentation that supports compliance with special permit conditions for the life of the pipeline.

VIII. Affected Resources and Environmental Consequences

Potential risks from the regulatory waiver to pipeline integrity was analyzed for each ***special permit segment*** to evaluate the potential for impacts or increased risk to safety or environmental resources. CGT must consider any direct, indirect, or cumulative impacts.

1) **Safety**: The Federal pipeline safety regulations require pressure reduction, pressure testing, or replacement of Class 1 and Class 2 location pipe in the event of certain population growth. The intent of the regulations is to better protect the higher populations located along the pipeline by reducing the probability of pipeline failure. The special permit waives the requirement to reduce pressure, re-pressure test, or replace the existing pipe with a stronger pipe in the ***special permit segments***. There are approximately 98 buildings intended for human occupancy (47 associated with ***special permit segments 1, 2 and 3***, one (1) associated with ***special permit segment 4***, and 50 associated with ***special permit segments 5, 6 and 7***) located within a 660 feet class unit buffer around the ***special permit segments*** which would benefit from increased safety associated with pipe replacement.

   CGT in **Attachment A –Pipeline Segment Integrity Information** submitted to PHMSA a review of the ***special permit segment pipeline*** anomaly threats.

   The special permit waives the requirement to reduce pressure, conduct new pressure testing, or replace the existing pipe with a stronger pipe in the ***special permit segments***. However, the special permit includes conditions intended to improve safety and environmental protection to equal or exceed that provided by the measures required under 49 CFR 192.611(a) in the ***special permit segments*** and the ***special permit inspection areas***.

   The special permit conditions include coating surveys and remediation, corrosion surveys and remediation, damage prevention activities, line of sight markers, inline-tool inspections for threats (corrosion, third party damage, and cracking – pipe body, seam, and girth welds), remediation of pipe threats based upon design factor for class location, reassessments based upon an IM program, procedures, and documentation.

   Monthly patrols, weather permitting, are used to observe surface conditions on and adjacent to the pipeline right-of-way for indications of leaks, third party construction activity, exposed pipe, erosion, or other factors that affect the safety and operation of the pipeline.

Close interval surveys will be performed on the pipe within the ***special permit segments*** to ensure cathodic protection (CP) is acceptable. Areas of low CP potentials have been or will be remediated according to the special permit conditions if the special permit is granted.

CGT will continue to perform Damage Prevention measures as described in the best practices of the Common Ground Alliance (CGA) within the ***special permit inspection areas***.

ILI tool inspections will be performed using high-resolution inspection at intervals of every five (5) calendar years, as specified by the special permit conditions.

Any anomalies detected during in-line inspections will be remediated in accordance with 49 CFR Part 192, Subpart O, and the conditions of the special permit. These activities provide safety and environmental protection around the ***special permit segments*** and the ***special permit inspection areas.***

The above-described monitoring conditions associated with the special permit would not be applicable if PHMSA denied the special permit request, because the safety requirements in 49 CFR Part 192, Subpart O only apply to 12.076 miles of HCAs within the ***special permit inspection areas***.

These monitoring conditions are intended to provide more information about the condition of the pipe so that any integrity issues can be remediated to avoid risk.

PHMSA has carefully evaluated the safety conditions of the ***special permit segments*** on the 30-inch diameter ML 100 and ML 200 and 36-inch diameter ML 300 Pipelines located in Madison County, Kentucky. Based on the information submitted by CGT and PHMSA's technical analysis of the threshold requirements, including operational, and safety issues, PHMSA finds that granting this special permit to CGT to operate is consistent with pipeline safety.

a) Will operation under a special permit change the risk of rupture or failure?

Since the safety risk with respect to the special permit focuses on the integrity of the pipeline and its effect on the increased population in the event of a catastrophic failure of this pipeline, the special permit contains conditions to ensure the safety level meets the requirement of 49 CFR Part 192 in the ***special permit inspection areas***. A number of pipeline safety measures that exceed the requirements of 49 CFR Part 192 have already been implemented in the ***special permit inspection areas***. The measures include conducting in-line inspection at least once in the last seven (7) years, repairing conditions that do not present a near-term risk to pipeline integrity

to help ensure the integrity and safety of the pipeline, patrolling frequencies that exceed the requirements of 49 CFR 192.705, and performing annual system-wide risk assessment to identify the risk levels associated with ***special permit segments*** both in HCAs and non-HCAs. In addition, the special permit requires preventive and mitigative measures to ensure an adequate safety level for the ***special permit segments*** and the ***special permit inspection areas***. These measures include, but are not limited to, performing a depth of cover survey during the CIS survey to confirm the presence of adequate cover in all the ***special permit segments*** and remediate appropriately, reviewing the existing pipeline markers and signage to ensure that the presence of a buried pipeline is visible in the ***special permit segments***, continuing to investigate and remediate any identified soil instability sites within the ***special permit segments***. The special permit allows operation at the current pressure (MAOP) in the updated class location. Additional inspections will lower the risk of rupture or failure.

b) How will the special permit conditions mitigate or account for this risk so that the overall level of safety of the pipeline is unchanged or improved?

The special permit waives the requirement to reduce pressure, conduct new pressure testing, or replace the existing pipe with a stronger pipe in the ***special permit segments***. However, the special permit will include conditions intended to improve safety and environmental protection so that pipeline safety is maintained as required in 49 CFR 190.341 in a degree similar to 49 CFR 192.611(a) in the ***special permit segments*** and increased in the ***special permit inspection areas***.

c) If a failure occurred, will consequences and spill or release volumes be different if PHMSA granted the permit?

If PHMSA had denied the special permit and CGT opted to reduce pressure instead of replacing the pipe, a failure on a reduced-pressure pipeline could result in a smaller volume of natural gas released. However, CGT would not opt to reduce pressure due to ongoing contractual obligations. Therefore, the ***special permit segments*** will be operating at the same pressure under the Selected Alternative and the No Action Alternative. The consequences and release volumes will be identical under both alternatives.

The special permit conditions include requirements for mainline valve monitoring and remote-control valves or automated shutdown valves that will decrease the amount of time needed to

isolate the pipeline in case of a failure. Shorter isolation times can reduce the volume of gas released and can reduce the potential consequences of a failure.

d) Will the Potential Impact Radius of a rupture change under the special permit? Please calculate and provide the PIR data, if applicable. Will more people be affected by a failure if PHMSA granted the permit?

The potential impact radius (PIR) of a rupture will not change if the special permit was granted. Consequently, no more people will be affected by a failure with PHMSA granting the special permit. The calculated PIRs of 730 feet (ML 100), 755 feet (ML 200) and 894 feet (ML 300) are determined using the current MAOP[5].

e) Will operation under the special permit have an effect on pipeline longevity or reliability? Will there be any life cycle or maintenance issues?

The implementation of increased pipeline assessment within the ***special permit inspection areas***, as required by the special permit, will improve pipeline reliability and safety. Continued operation of the ***special permit segments*** will not be expected to influence the pipeline longevity and reliability or cause any life cycle or maintenance issues. In addition, the pipelines in ***special permit inspection areas*** on the CGT system have the same characteristics and operate as one system. The MAOP and other factors will not change under the special permit and will not impact the overall pipeline longevity or reliability and will not cause any life cycle or maintenance issues.

2) **Climate Change and Air Quality**: The three ***special inspection areas*** lie roughly parallel to each other in a corridor approximately 80 miles in length. Using EPA EJScreen, air quality indexes were obtained for the 80-mile corridor, as shown in the table below.[6] The value of each index is less than

[5] CGT transports high-Btu gas and uses a commodity factor of 0.73 in the PIR calculation. Additionally, CGT adds 60 feet to the calculated PIR for additional conservatism.

[6] An EJ index combines demographic factors with a single environmental factor. To calculate a specific EJ index, EJScreen uses a formula to combine a single environmental factor with the demographic index (which averages low income and people of color populations). See, EJ and Supplemental Indexes in EJScreen | US EPA . Percentiles are a way to see how local residents compare to everyone else in the stated area. Instead of just showing numbers out of context, EJScreen lets you compare a community to the rest of the state, EPA region and nation, by using percentiles. The percentile tells you what percent of the relevant US population has an equal or lower value, meaning less potential for exposure/ risk/ proximity to certain facilities, or a lower percent minority.

or equal to the median (50-percentile) value for the state, suggesting that air quality is typical, or slightly better than typical, for the state.

EJ Indexes for Air Quality	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Index for Particulate Matter (PM 2.5)	46	34	36
EJ Index for Ozone	46	32	37
EJ Index for NATA Diesel PM	50	38	41
EJ Index for NATA Air Toxics Cancer Risk	47	37	36
EJ Index for NATA Respiratory Hazard Index	47	38	36
EJ Index for Traffic Proximity and Volume	45	35	42

In normal operations, under both the Selected Alternative and the No Action Alternative, there will be no emissions from the pipeline system, apart perhaps from trace quantities of gas – "fugitive emissions" – that may seep through flange and valve seals. Thus, the performance with respect to emissions in normal operations will be identical under both the Selected Alternative and the No Action Alternative.

Replacement of the ***special permit segments*** under the No Action Alternative would involve a minor temporary increase in greenhouse gases and other emissions due to construction-related activities and blowdown. Under the No Action Alternative, all ***special permit segments*** would be blown down for removal and replacement. Methane capture or pressure reduction techniques will be used to remove most of the gas from the segment being blown down. The residual, low-pressure gas would be vented to atmosphere. Under the Selected Action, blowdown would not be necessary.

Under the Selected Alternative, there will be a minimal impact on air quality in the ***special permit inspection areas*** due to the additional surveillance, assessment, and maintenance activities required by the special permit. The No Action Alternative would have a more substantial, though still minimal, effect on air quality, with temporary additional emissions caused by equipment used during excavation, pipeline blowdown, pipe removal, pipe replacement, and pipeline recommissioning.

In operation, the Selected Alternative and the No Action Alternative will be expected to have identical performance with respect to emissions. However, the special permit includes leak detection requirements that are intended to identify and remediate small pipeline leaks. Under both alternatives, there should be no emissions in normal operations (except perhaps for trace quantities of fugitive emissions from flange and valve seals).

3) **Noise**: The ***special permit inspection areas*** are located mainly in areas of pasture/hay or forest, with a small percentage of their length in developed areas. The ***special permit segments*** are in rural areas

with residential development. Current noise levels are consistent with the type of area and may include noise from road traffic, agricultural equipment, and residential activities.

The No Action Alternative would result in temporary increases in noise during the replacement of the existing pipe but no change in noise levels during operations. The Selected Alternative will result in occasional, minor, temporary noise associated with the additional surveillance, assessment, and maintenance activities in the ***special permit inspection areas***.

Noise ordinances applicable to the ***special permit inspection areas*** may include daily or weekend curfews on certain activities and limitations on the sound output of specific machines.

4) **Environmental Justice**: All of the ***special permit segments*** are located in areas with below 50% minority populations or low-income populations**, see Table 4 - Demographic Information for Special Permit Segment – Using EPA EJScreen**. In any event, the activities of the special permit are intended to maintain safety along all of the ***special permit segments***, reduce environmental impacts, and increase the level of the safety along the ***special permit inspection area***.

   The special permit is intended to maintain or increase safety with the implementation of safety conditions in the ***special permit segments***. Many special permit conditions also apply to the ***special permit inspection area*** and will not have a disparate impact on any minority, low income, or limited English proficiency populations. This special permit will also reduce climate change impacts, which are understood to disproportionately affect low-income and minority communities. Therefore, consistent with DOT Order 5610.2C ("Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations") and Executive Orders 12898 ("Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations"), 13985 ("Advancing Racial Equity and Support for Underserved Communities Through the Federal Government"), 13990 ("Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis"), 14008 ("Tackling the Climate Crisis at Home and Abroad"), 12898 and DOT Order 5610.2(a), and Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, PHMSA does not anticipate that the special permit will result in disproportionately high and adverse effects on minority or low-income populations.

Table 4 - Demographic Information for Special Permit Segments – Using EPA EJScreen						
Special Permit Segment	**State**	**County**	**Total Population (Along Special Permit Segment)**	**Minority*/ People of Color** Population**	**Low Income Population**	**Linguistically Isolated**
1	KY	Madison	128	9%	23%	0%
2	KY	Madison	128	9%	23%	0%
3	KY	Madison	155	9%	23%	0%
4	KY	Madison	52	6%	26%	0%
5	KY	Madison	181	1%	26%	0%
6	KY	Madison	181	1%	26%	0%
7	KY	Madison	181	1%	26%	0%

Minority*: The term minority is used in the currently active DOT Environmental Justice Order 5610.2(a), available at: https://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/orders/order_56102a/index.cfm

People of Color**: The term people of color is used in EPA's Environmental Justice Screening and mapping tool (EJSCREEN). An overview of demographic indicators through EJSCREEN is available at: https://www.epa.gov/ejscreen/overview-demographic-indicators-ejscreen

A pipeline failure may take the form of a leak or a rupture. The consequences would be similar in both cases, but typically would be more serious in the event of a rupture. If a rupture occurs and the released gas ignites, the thermal radiation from the fire is a hazard to people outdoors, potentially causing serious injury or death depending on distance from the rupture. The thermal radiation may also result in spontaneous or piloted ignition of houses and other structures, or of nearby vegetation. A flammable mixture of natural gas and air will not explode unless confined, for example by walls or densely packed obstructions. An energetic ignition source is usually also needed to generate significant overpressures. Natural gas explosions resulting from pipeline releases are therefore rare. An unignited release from a pipeline typically does not result in injury to people. Natural gas is not toxic but a simple asphyxiant. However, an unignited release will have environmental consequences because natural gas (unburned) is a powerful greenhouse gas (GHG).

The pipeline in the ***special permit inspection areas*** will receive additional inspection and monitoring to provide more information about the condition of the pipe so that any integrity issues can be remediated to avoid risk. The No Action Alternative would require compliance with Federal regulation 49 CFR 192.611(a). This would require the replacement of the existing pipeline in the ***special permit segments*** with a thicker/stronger pipe that meets the requirements of 49 CFR Part 192 for new pipe. However, the additional inspection and monitoring conditions associated with the special permit would not be applicable if the special permit were denied because those conditions are

not mandated by the regulations. Accordingly, both alternatives are expected to lead to a similar safety result.

5) **Aesthetics**: The only permanent visual impact of the Selected Alternative will be the installation of line-of-sight markers that are placed to reduce the risk of third-party damage. Increased maintenance activities, including some temporary excavations, could cause intermittent visual impacts. Maintenance activities and line-of-sight markers will have a minimal impact on the visual character of the ***special permit segments*** and of the ***special permit inspection areas***.

6) **Agricultural Resources**: Issuance of the special permit will result in increased maintenance activities due to more stringent maintenance requirements than would otherwise be required. These maintenance activities may cause occasional, minor, temporary interference with some agricultural activities but would have a significantly smaller footprint than would pipe removal and replacement.

7) **Biological Resources**: Wildlife in the ***special permit segments*** and ***special permit inspection areas*** includes several threatened or endangered species (listed in the next section) and various birds of conservation concern. The ***special permit segmen***ts and ***special permit inspection areas*** do not overlap any National Wildlife Refuge lands or fish hatcheries.

   Vegetation in the ***special permit segments*** and ***special permit inspection areas*** includes:

   - Deciduous forest
   - Evergreen forest
   - Mixed forest
   - Shrub/scrub
   - Grassland/herbaceous
   - Pasture/hay
   - Cultivated crops
   - Emergent herbaceous wetlands

   The following endangered or threatened species may be encountered in or near the ***special permit segmen***ts and ***special permit inspection areas***:

Group	Name	Status
Mammals	Gray Bat	Endangered
	Indiana Bat	Endangered
	Northern Long-eared Bat	Endangered
	Virginia Big-eared Bat	Endangered
Clams	Clubshell	Endangered
	Fanshell	Endangered
	Northern Riffleshell	Endangered
	Pink Mucket	Endangered
	Purple Cat's Paw	Endangered
	Rabbitsfoot	Threatened
	Ring Pink	Endangered
	Rough Pigtoe	Endangered
	Sheepnose Mussel	Endangered
	Snuffbox Mussel	Endangered
	Spectaclecase (mussel)	Endangered
Flowering Plants	Running Buffalo Clover	Endangered
	Short's Bladderpod	Endangered

Issuance of the special permit will result in increased maintenance activities due to more stringent maintenance requirements than would otherwise be required. These activities will be carried out within the previously disturbed right of way.

8) **Cultural Resources**: There are no known cultural, archaeological, or paleontological resources that will be impacted by this project. Furthermore, the pipelines are already operational, and all activities associated with the Selected Alternative will be carried out within the previously disturbed right of way.

9) **Geology, Soils, and Mineral Resources**: The pipelines are already operational. The Selected Alternative will have no further effect on soils, geology, or mineral resources of the area. Earthquake is identified as a seismic hazard within the ***special permit inspection areas***. According to the USGS Unified Hazard Tool, there is a 2 percent probability in 50 years of a peak ground acceleration (g) of 0.1006 in the ***special permit inspection areas***. Earthquakes in Kentucky since 1900 have ranged up to VI ("Strong") on the Modified Mercalli Intensity Scale.

10) **Indian Trust Assets**: According to information from the U.S. Department of Interior, Bureau of Indian Affairs and from the EPA, there are no federally recognized Indian tribes or tribal reservations in the vicinity of the ***special permit inspection areas***.

11) **Land Use**: The Selected Alternative will have no impact on the surrounding land use because the pipelines are already operational. The Selected Alternative will have no impact on land use or

planning because the pipelines are already operational. The Selected Alternative will have no impact on any local government land use plan because the pipelines are already operational.

12) **Recreation**: The Selected Alternative will have no impact on any recreational resources because the pipelines are already operational. The Selected Alternative will have no impact on any recreational resources because the pipelines are already operational.

13) **Topography**: The topography along the ***special permit segments*** and ***special permit inspection areas*** is undulating, with an average slope of approximately 3.5° and a maximum slope of approximately 30°. The Selected Alternative may involve minor, occasional, temporary ground disturbance for the purpose of performing the increased inspection and maintenance activities mandated by the special permit. Pipe replacement under the No Action Alternative will require significantly more ground disturbance. There will be no permanent change to topography under either Alternative.

14) **Transportation**: The ***special permit segments*** will be accessed by existing roads and right-of-way crossings. The special permit conditions require increased surveillance, inspection, and maintenance activities. These activities will result in occasional minor temporary increases in traffic. Construction of additional roads will not be required. Road maintenance requirements will not be significantly increased.

15) **Water Resources**: The ***special permit segments*** (except for ***special permit segment 4***) overlap wetlands (riverine and freshwater pond). The ***special permit inspection areas*** also overlap wetlands (freshwater emergent wetland, freshwater forest/shrub wetland, freshwater pond, lake, and riverine).

No exceptional waters, outstanding waters or federally designated Wild Scenic Rivers have been identified in the vicinities of the ***special permit inspection areas***.

EPA defines a sole source aquifer (SSA) as one where the aquifer supplies at least 50 percent of the drinking water for its service area and there are no reasonably available alternative drinking water sources should the aquifer become contaminated. The ***special permit segments*** and ***special permit inspection areas*** do not overlap any SSA.

If PHMSA grants or denies the special permit request, there will be no new impacts to water resources except those related to runoff due to excavation activities. The No Action Alternative would involve excavation in the ***special permit segments*** for the purpose of pipeline replacement.

The Selected Alternative may involve occasional limited-length excavation works for the purpose of inspecting coatings and the external surface of the pipe in the event that anomalies should be suspected.

IX. Consultation and Coordination

CGT and PHMSA personnel involved in preparation of this document include:

- Richard Rodrigues, TC Energy
- Peter Carr – Senior Risk Specialist – LineStar Integrity
- Trent Ackhurst – Commercial Director – LineStar Integrity
- Derrick Daniels, Integrity Specialist, Dynamic Risk
- Rick Kivela, Priority Services Consultant, Dynamic Risk

TC Energy is not aware of any person that will be directly impacted by the special permit. TC Energy has not engaged in stakeholder or public communication regarding this special permit request.

PHMSA

Amelia Samaras, PHMSA, US DOT

Steve Nanney, PHMSA, US DOT

X. Request for Public Comments Placed on Docket PHMSA-2022-0084

PHMSA publishing the special permit request in the Federal Register (87 FR 50693) for a 30-day public comment period from August 17, 2022 through September 16, 2022. PHMSA sought comments on any potential environmental impacts that could result from the selection of either alternative including the special permit conditions. The special permit application from CGT and special permit conditions were available in Docket No. PHMSA-2022-0084 at: www.regulations.gov for public review.

PHMSA received one (1) public comment concerning this special permit request. PHMSA received comments from the Pipeline Safety Trust (PST) which asked PHMSA to examine several topics:

(1) **PST Comment**: PST commented that PHMSA should provide more information regarding the characteristics of the ***special permit inspection areas***. Further, PST comments that the special permit should not be automatically extended to include ***special permit inspection areas*** in the

future without the public having more information regarding the condition of pipelines in those areas.

- **PHMSA Response**: The ***special permit inspection areas*** do not require a waiver of the regulations because the class locations in those areas have not changed. (*e.g.*, PHMSA is not granting any relief in the ***special permit inspection areas*** that are outside of the seven (7) special permit segments specifically identified above. Rather, the agency is affirmatively requiring the operator to comply with additional conditions in the special permit inspection area at large.)

  The purpose of the ***special permit inspection areas*** in the permit is to increase the protection afforded to populated and environmentally sensitive areas along the right of way by requiring operators to perform in-line inspections, assessments, and repairs of any actionable anomalies identified in the ***special permit inspection area***. PHMSA will not automatically allow waivers of the regulations in the ***special permit inspection areas*** that are not adjacent to the ***special permit segment*** without a request from the operator. Such requests will be noticed for public comment. Requests for pipe segments adjacent to a ***special permit segment*** will be reviewed for integrity, pressure test records, material records, and any environmental impacts.

  PHMSA notes that on August 24, 2022, it posted a document titled, **CGT – Attachment A – Class 1 to 3 SP – Pipeline Segment Integrity Information**, which contains integrity information for the ***special permit segments*** and portions of the ***special permit inspection areas***. PHMSA has reviewed the integrity information for all of the ***special permit segments*** to ensure the special permit conditions address pipeline safety and integrity threats to the ***special permit segments***. These conditions will require CGT to provide a systematic program to review and remediate the pipeline for safety concerns in its Operations and Maintenance (O&M) Manual and procedures. PHMSA understands PST's request for such information regarding the ***special permit inspection areas*** and will continue to post all relevant information to the public dockets associated with each application, as it pertains to a ***special permit segment*** or the extension of a ***special permit segment***.

(2) **PST Comment**: PST commented that two (2) crack features have been identified within six (6) miles of three (3) ***special permit segments*** and these special permit segments have not been pressure tested after the discovery of these cracks. PST urges PHMSA to review these specific ***special permit segments*** and updated pressure tests should be required.

- **PHMSA Response**: PHMSA requires through implementation of **Special Permit Conditions 5 – Inline Inspection**, **Condition 7 - Stress Corrosion Cracking Threat,** and **Condition 8 - Anomaly Evaluation and Remediation**, that CGT evaluate and remediate pipe with cracking based on requiring assessments using ILI tool to assess the cracking threat in ***special permit segments 1 through 7***. **Special Permit Condition 8** has remediation requirements for all types of anomalies including cracking, denting, and corrosion of the pipe.

(3) **PST Comment**: PST has concerns regarding the valve spacing of the ***special permit segments***. According to Table 4 in the Special Permit Conditions document, six (6) of the ***special permit segments*** are located within a more than 12-mile spacing between valves, and one (1) of the ***special permit segments*** are located within a 10-mile spacing between valves. PST believes that these conditions are not sufficient to ensure the safety of residents near the ***special permit segments*** included in this request due to potential duration and release volume of gas in the event of a failure. Although, PST does recognize that the special permit conditions indicate that all ***special permit segments*** "must have upstream and downstream remote-controlled valves (RCVs) so that the distance between the valves is no greater than 20 miles", we feel that this requirement is not in line with the new valve rule spacing requirements of 4-mile intervals for Class 3 locations. Within the valve rule, PHMSA's discussion regarding spacing requirements does mention 1-class bumps in which the operator may use the maximum valve spacing of a class below the class location of the replacement project, but there is no discussion regarding a 2-class bump from Class 1 to Class 3 locations. PST urges PHMSA to reconsider this condition within the special permit to require a distance of no more than four (4) miles from each ***special permit segment*** to an upstream and downstream valve. PST feels that this requirement would significantly increase the safety of residents living near the ***special permit segments*** included in this request.

- **PHMSA Response**: Section 192.634(b)(2) allows up to 15 miles of spacing between valves for Class location changes to a Class 3 location (class bump) when pipe is replaced. The special permit does not require pipe replacement. PHMSA feels that with CGT's valves being 12 miles apart and upon implementation of the additional special permit conditions including the automatic

shutoff valve requirements[7], pipe assessment intervals, and additional anomaly remediation criteria, the special permit is consistent with pipeline safety.

(4) **PST Comment**: PST states that CGT claims the permit will provide environmental and safety benefits by eliminating methane emissions that would occur from blowdowns in anticipation of hydrotesting and/or replacement. PST comments that non-emergency blowdowns should not be considered a sufficient reason to avoid strength testing and replacement of pipe segments where necessary to comply with the pipeline safety regulations.

- **PHMSA Response**: PHMSA uses strict criteria when determining whether a class location special permit will provide at least an equivalent level of safety to people and the environment as the Federal pipeline safety regulations. While avoidance of blowdown emissions is beneficial, the criteria focuses on the safety of communities that are in proximity to the ***special permit segments***. Please see the Federal Register Notice, "Pipeline Safety: Development of Class Location Change Waiver Criteria," (69 FR 38948, June 29, 2004) for detailed description of the criteria that PHMSA evaluates when determining if granting a special permit is consistent with pipeline safety. Furthermore, Special Permit **Condition 13(m), "Minimization of Gas Released to the Environment,"** requires minimization of gas loss during blowdowns.

(5) **PST Comment**: PST commented that CGT's application does not contain adequate justification for the need of the special permit.

- **PHMSA Response**: Section 190.341(c)(4) requires operators to provide, "an explanation of the unique circumstances that the applicant believes make the applicability of that regulation or standard (or portion thereof) unnecessary or inappropriate for its facility" with their special permit application. The Federal Register Notice, "Pipeline Safety: Development of Class Location Change Waiver Criteria," (69 FR 38948, June 29, 2004), describes the specific circumstances in which PHMSA will consider special permit applications for class location changes. The Federal Register Notice includes the criteria that PHMSA evaluates to determine the suitability of granting a permit, in addition to consideration of the justification for the waiver. The CGT application stated that implementation of enhanced integrity management with enhanced monitoring and maintenance requirements will ensure the integrity of the pipe and

[7] **Table 4 – Valves and Lateral Locations with Isolations Methods** in the special permit conditions has isolation times for each ***special permit segment***.

protection of the population living near the pipeline segment to a similar degree as replacing with heavier walled or higher-grade pipe without the enhanced integrity management activities (see **CGT – Attachment A – Class 1 to 3 SP – Pipeline Segment Integrity Information**). PHMSA considered CGT's analysis of the suitability criteria in determining whether issuing the permit is consistent with pipeline safety.

XI. Finding of No Significant Impact

In consideration of the special permit conditions explained above, PHMSA finds that no significant negative impact will result from the issuance and full implementation of the above-described special permit to waive the requirements of 49 CFR 192.611(a) for ***special permit segments***, 7.815 miles of 30-inch and 36-inch diameter pipelines located in Madison County, Kentucky. This permit will require CGT to implement additional conditions on the operations, maintenance, and IM of the ***special permit segments*** and ***special permit inspection areas***.

The granted special permit conditions and SPAF are available in the FDMS Docket No. PHMSA-2022-0084 at: www.regulations.gov for public review.

XII. Bibliography

National Land Cover Database (NLCD) 2016. Available at https://s3-us-west-2.amazonaws.com/mrlc/NLCD_2016_Land_Cover_L48_20190424.zip. Accessed July 2021.

U.S. Department of Interior, Bureau of Indian Affairs. 2016. Indian Lands of the Federally Recognized Tribes of the United States. Available at https://www.bia.gov/sites/bia.gov/files/assets/bia/ots/webteam/pdf/idc1-028635.pdf. Accessed July 2021.

United States Environmental Protection Agency (EPA). EPA Tribal Areas. https://edg.epa.gov/data/Public/OEI/OIAA/Tribes/EPAtribes.zip Accessed July 2021.

United States Environmental Protection Agency. Sole Source Aquifers for Drinking Water. https://catalog.data.gov/dataset/epa-sole-source-aquifers. Accessed May 2021.

United States Environmental Protection Agency (EPA). Drinking Water Mapping Application to Protect Source Waters (DWMAPS). https://geopub.epa.gov/DWWidgetApp/. Accessed July 2021.

United States Environmental Protection Agency (EPA). EJSCREEN. www.epa.gov/ejscreen. Accessed July 2021.

United States Environmental Protection Agency (EPA). NEPAssist. https://nepassisttool.epa.gov/nepassist/nepamap.aspx. Accessed July 2021.

U.S. Fish & Wildlife Service. Information for Planning and Conservation (IPaC). https://ecos.fws.gov/ipac/. Accessed July 2021.

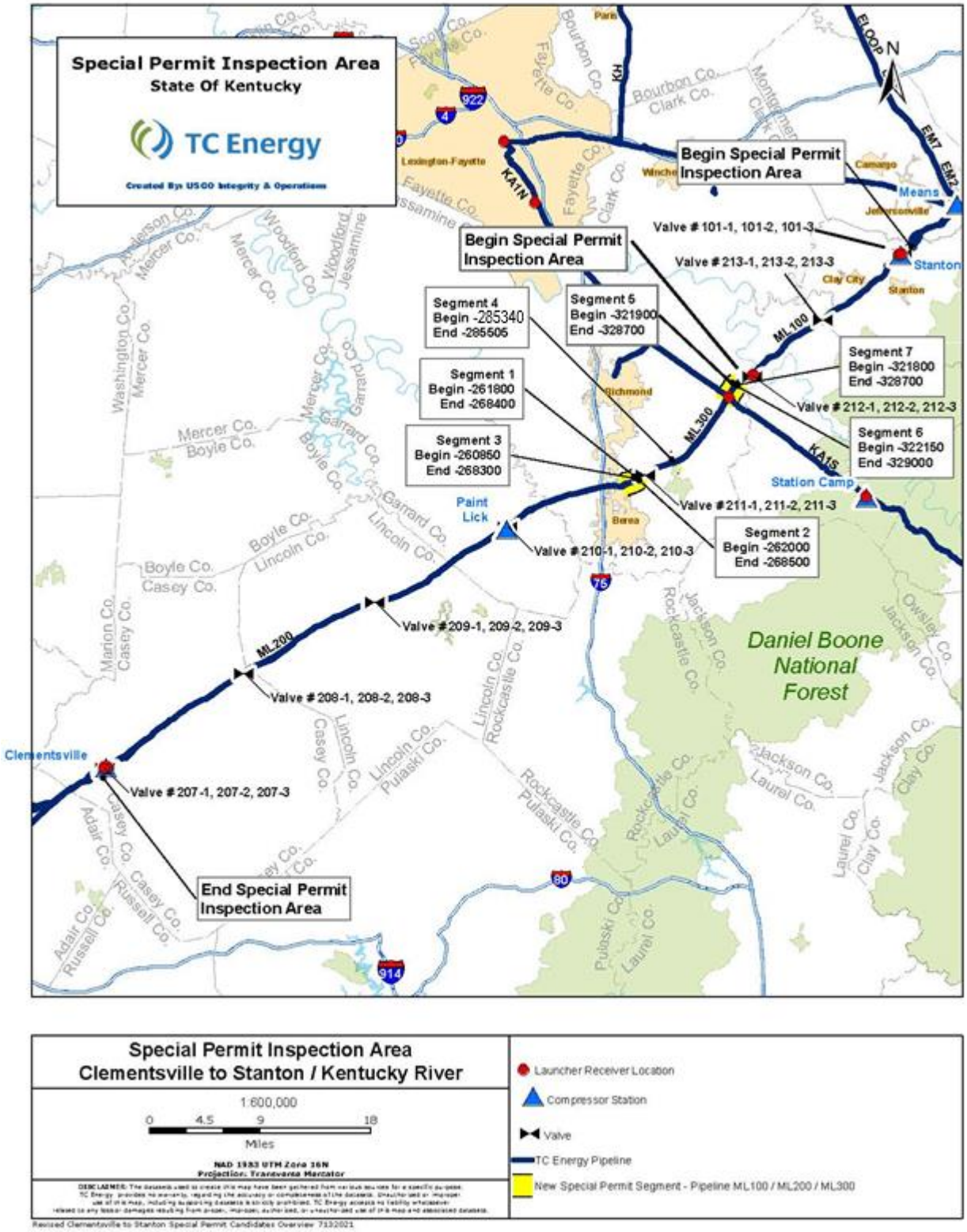
U.S. Geological Survey (USGS). Unified Hazard Tool. https://earthquake.usgs.gov/hazards/interactive/. Accessed July 2021.

U.S. Geological Survey (USGS). Information by Region. https://www.usgs.gov/natural-hazards/earthquake-hazards/information-region. Accessed July 2021.

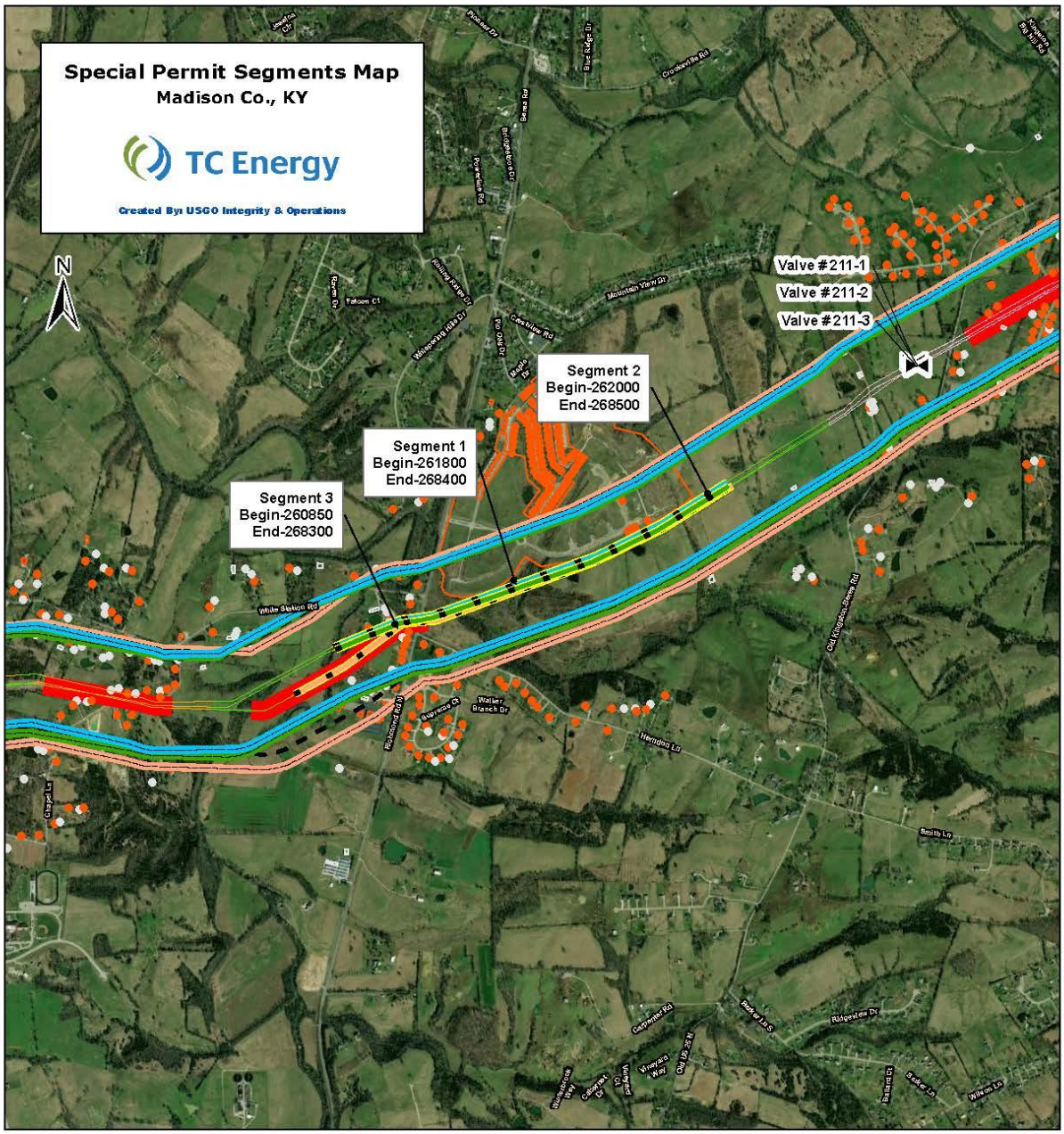
The special permit with conditions granted to CGT, letter of decision, special permit analysis and findings, and FEA and FONSI for Docket No. PHMSA-2022-0084 can be found on the FDMS located on the internet at www.regulations.gov or on the PHMSA website for special permits issued at https://www.phmsa.dot.gov/pipeline/special-permits-state-waivers/special-permits-issued.

Completed by PHMSA in Washington, DC on: June 30, 2023

Attachment A – CGT 30-inch and 36-inch ML 100, ML 200, ML 300 Route Map
Special Permit Segments and Inspection Area



Attachment B – CGT 30-inch and 36-inch ML 100, ML 200, ML 300 Route Map
Special Permit Segments 1, 2 and 3



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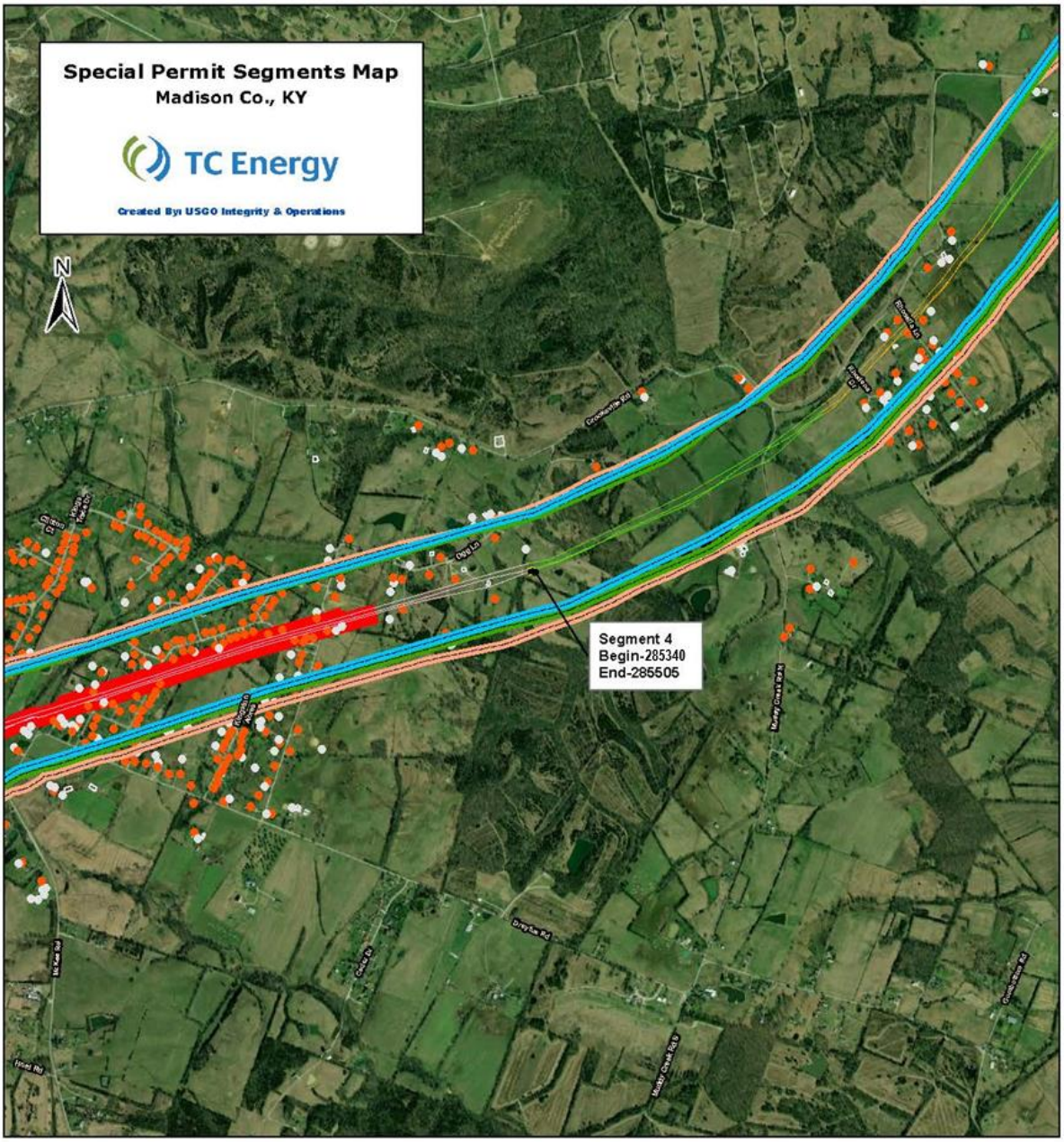
Attachment B – CGT 30-inch and 36-inch ML 100, ML 200, ML 300 Route Map
Special Permit Segment 4



Special Permit Segment 4

1:24,000
0 1,000 2,000 4,000
Feet

NAD 1983 UTM Zone 16N
Projection: Transverse Mercator

DISCLAIMER: The datasets used to create this map have been gathered from various sources for a specific purpose. TC Energy provides no warranty, regarding the accuracy or completeness of the datasets. Unauthorized or improper use of this map, including supporting datasets is strictly prohibited. TC Energy accepts no liability whatsoever related to any losses or damages resulting from proper, improper, authorized, or unauthorized use of this map and associated datasets.

G:\16-Mapping\Special Permit Areas\Request_3568_New CGT Special Permits\New CGT Map 3.mxd

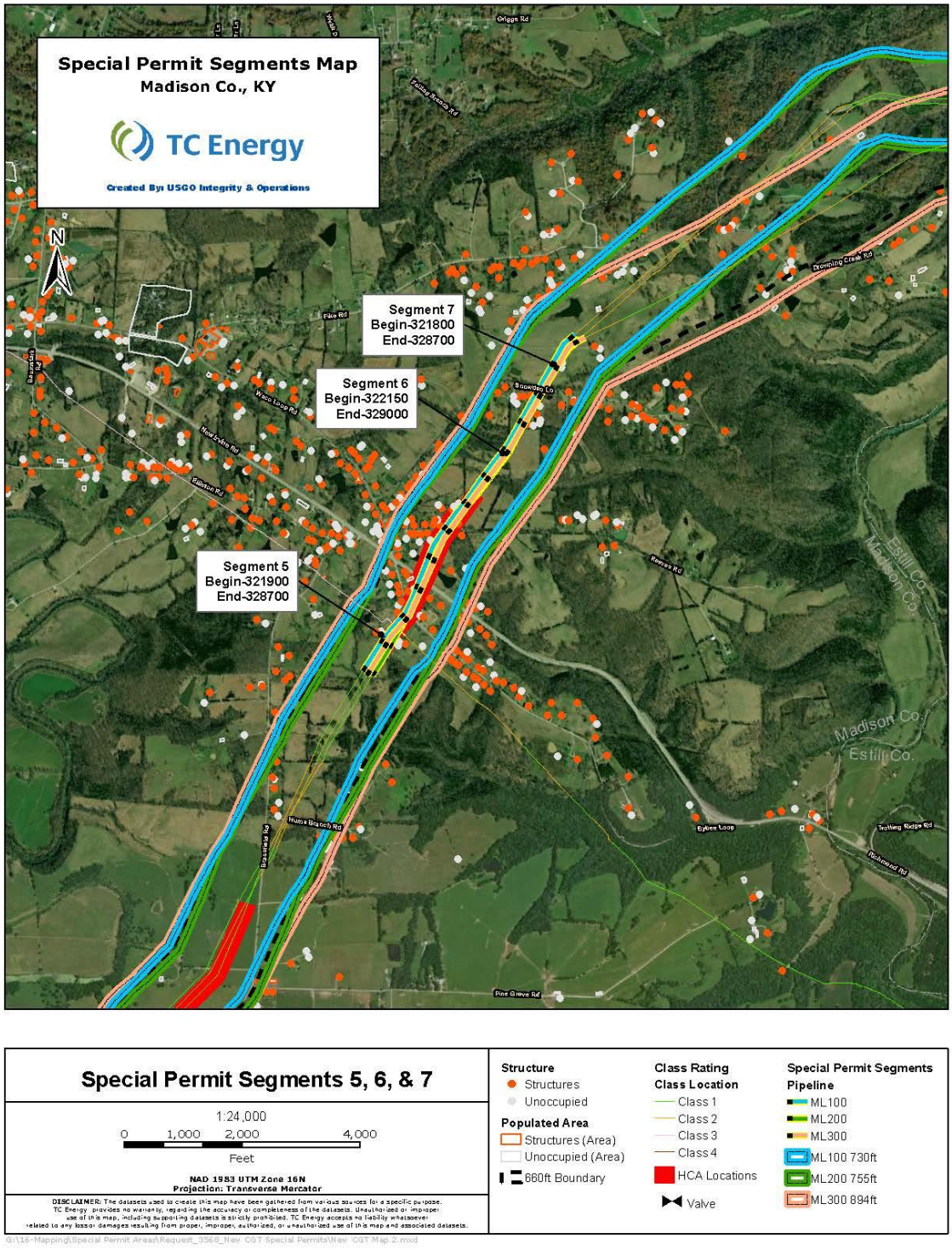
Structure
- Structures
- Unoccupied

Populated Area
- Structures (Area)
- Unoccupied (Area)
- 660ft Boundary

Class Rating
Class Location
- Class 1
- Class 2
- Class 3
- Class 4
- HCA Locations
- Valve

Special Permit Segments
Pipeline
- ML100
- ML200
- ML300
- ML100 730ft
- ML200 755ft
- ML300 894ft

Attachment B – CGT 30-inch and 36-inch ML 100, ML 200, ML 300 Route Map
Special Permit Segments 5, 6 and 7



Last Page of the FEA and FONSI