

BEFORE THE PUBLIC SERVICE COMMISSION OF THE STATE OF MISSOURI

In the Matter of the Application of Roeslein)
Alternative Energy Services, LLC for a) File No. GE-2023-0096
Permanent Waiver from Certain Provisions)
of 20 CSR 4240-40.030 (MAOP))

ORDER DIRECTING NOTICE AND SETTING DEADLINES FOR INTERVENTION APPLICATIONS AND STAFF'S RECOMMENDATION

Issue Date: September 13, 2022

Effective Date: September 13, 2022

On September 12, 2022, Roeslein Alternative Energy Services, LLC (RAES), filed an *Application for Waivers*. RAES is requesting a permanent waiver of the requirement under Commission Rule 20 CSR 4240-40.030(3)(I)(3)(B)(I) that sets a design pressure limit of 100 psig for polyethylene pipe with a DF (design factor) of 0.40. RAES is seeking to upgrade the maximum allowable operating pressure to 125 psig for an existing pipeline in Mercer County, Missouri. RAES also requests waiver of the Commission's 60-day notice requirement under 20 CSR 4240-4.017.

The Commission will direct notice be given and set a deadline for intervention applications. The Commission will also direct its Staff to file a recommendation with regard to RAES's application.

THE COMMISSION ORDERS THAT:

1. The Commission's data center shall provide notice of this order and RAES's application to the county commission for Mercer County, Missouri.
2. The Commission's Public Policy and Outreach Department shall provide notice of this order to news media serving residents in Mercer County and members of the General Assembly representing residents in Mercer County.

3. Applications for intervention shall be filed no later than September 23, 2022. Any such filing shall be submitted through the Commission's electronic filing and information system (EFIS) or delivered to: Secretary, Missouri Public Service Commission, P.O. Box 360, Jefferson City, MO 65102.

4. No later than October 13, 2022, the Commission's Staff shall file either a recommendation regarding RAES's application or a status report indicating when it expects to file a recommendation.

5. This order shall be effective when issued.



BY THE COMMISSION

A handwritten signature in black ink that reads "Morris L. Woodruff".

Morris L. Woodruff
Secretary

Kenneth J. Seyer, Regulatory Law Judge,
by delegation of authority pursuant to
Section 386.240, RSMo (2016).

Dated at Jefferson City, Missouri,
on this 13th day of September, 2022.

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of the Application of)
Roeslein Alternative Energy Services, LLC) File No. GE-2023-____
for a Permanent Waiver From Certain)
Provisions of 20 CSR 4240-40.030 (MAOP))

APPLICATION FOR WAIVERS

COMES NOW Roeslein Alternative Energy Services, LLC (“RAES” or “Company”), pursuant to 20 CSR 4240-2.060(4), 20 CSR 4240-40.030(18), 20 CSR 4240-2.080(18), and 20 CSR 4240-4.017(1), and, for its *Application for Waivers*, respectfully states as follows to the Missouri Public Service Commission (“Commission”).

THE APPLICANT

1. RAES is a Missouri Limited Liability Company, organized and existing under the laws of the state of Missouri, with a registered address of 9200 Watson Road, Suite 200, St. Louis, Missouri, 63126. RAES’ Certificate of Good Standing from the Missouri Secretary of State’s Office is attached as **Appendix A**. RAES has no pending actions or final unsatisfied judgments or decisions against it from any state or federal agency or court that involve customer service or rates and has no overdue annual reports or assessment fees.

2. Pleadings, notices, orders, and other correspondence and communications regarding this docket should be addressed to the undersigned counsel for RAES and also to:

Tim Johnston
Roeslein Alternative Energy Services, LLC
9200 Watson Road, Suite 200
St. Louis, MO 63126-1528

(314) 270-9133
tjohnston@roesleinae.com

3. The mission of RAES and its affiliates is to discover and implement alternative biomass and energy solutions, with the goal of restoring millions of acres of grasslands on marginal land throughout the Midwest region. RAES affiliates create renewable natural gas (RNG), pipeline-quality natural gas produced from organic inputs and natural processes. After production and processing, RAES affiliates gather this RNG to a point where it may be compressed and injected into a transmission pipeline.

4. RAES is neither a “gas corporation” nor a “public utility” as those terms are defined at §386.020, RSMo. However, it does operate “gas plant” that is subject to the Commission’s gas safety jurisdiction.¹

BACKGROUND

5. Impermeable covers have been installed on existing lagoons to harvest renewable natural gas from hog finishing farms, using anaerobic digestion technology developed and installed by RAES affiliates. The covers turn the lagoons into anaerobic digesters, where naturally occurring microorganisms decompose the manure in an oxygen free environment. Bio-gas rises to the top where it is collected and cleaned of impurities. What remains is more than 98 percent methane, with approximately the same chemical composition as natural gas, that can be used for vehicle fuel or injected into the natural gas grid system. The un-digestible solid residue can be used by local farmers as a natural fertilizer, and the water can be safely used for irrigation. As a part of this process, RAES constructs RNG gathering systems to bring this gas to a site for

¹ See *Order Denying Application in Part and Dismissing Application in Part*, File No. GA-2016-0271 (Issued August 3, 2016).

injection into the ANR Pipeline (an interstate pipeline under the jurisdiction of the Federal Energy Regulatory Commission).

6. In the situation at issue in this Application, RAES is requesting to upgrade the maximum allowable operating pressure (MAOP) of the existing pipeline from the Somerset Farm located in Mercer County, Missouri, to the existing interconnect with the ANR Pipeline, also located in Mercer County. The requested upgrade would raise the MAOP from the current 100 psig to 125 psig. (See the map attached as **Appendix B**). This intrastate gas transmission pipeline is approximately 8.4 miles long and is located in a Class 1 location. RAES seeks a permanent waiver from Commission Rule 20 CSR 20 CSR 4240-40.030(3)(I)(3)(B)(I) as to that portion of its transmission line described above pursuant to Commission Rule 20 CSR 4240-40.030(18).

20 CSR 4240-40.030 WAIVER

7. The Applicant requests that the Commission grant a permanent waiver of compliance ("waiver") for the above-described gas transmission line in regard to the provisions of 20 CSR 4240-40.030(3)(I)(3)(B)(I), which, in relevant part, require as follows:

3. Polyethylene (PE) Pipe Requirements. A. The federal regulation at 49 CFR 192.121(c)(1) is not adopted in this rule. (This federal regulation permits higher design pressures for certain types of PE pipe.) B. For PE pipe produced after January 22, 2019, a DF of 0.40 may be used in the design formula, provided: (I) The design pressure does not exceed 100 psig;

8. Waivers from these gas safety rules are permitted, upon a showing that gas safety is not compromised. Commission Rule 20 CSR 4240-40.030(18) states as follows:

(18) Waivers of Compliance. Upon written request to the secretary of the commission, the commission, by authority order and under such terms and conditions as the commission deems appropriate, may waive in whole or part compliance with any of the requirements contained in this rule. Waivers will be granted only on a showing that gas safety is not compromised. If the waiver request would waive compliance with a federal requirement in 49 CFR part 192, additional actions shall be taken in accordance with 49 USC 60118 except when the provisions of subsection (17)(G) apply.

9. RAES intends to construct a new pipeline from the Badger-Wolf farm, located south of the Somerset farm, to the Somerset farm and tie this new pipeline into the existing pipeline from the Somerset farm to the existing interconnect with the ANR Pipeline system located north of Mercer, Missouri. The combined flow from the Somerset farm and from the Badger Wolf farm, and from other future connections south and east of the Badger Wolf farm, will be greater than the capacity of the existing line if operated at 100 psig. Upgrading the MAOP to 125 psig would allow this combined gas flow to be accommodated. Without this waiver, RAES will have to install an additional pipeline parallel to the existing pipeline. This additional pipeline would add considerable cost to the project and further encumber the public and private ROWS along the route.

10. Safety will not be compromised by the requested waiver because of the nature of the transmission line in question. The pipeline has been designed in accordance with the remainder of 20 CSR 4240-40.030(3)(I)(3), and the requested waiver will not exceed the maximum allowable operating pressure of 125 psig specified in 49 CFR Part 192.121, the Federal code corresponding to this section of the Missouri statute. 49 CFR Part 192.121 is attached hereto as **Appendix C**. RAES proposes to establish the requested MAOP by a method approved by existing regulation. Due to the seasonal nature of the flow through this pipeline, RAES has determined that the best

method for establishing the new MAOP will be to conduct a new pressure test in accordance with 49 CFR Part 192.513 and 20 CSR 4240-40.030(10)(G)(3). Thus, to establish a MAOP of 125 psig, the pipeline will have to safely achieve a test pressure of 188 psig.

11. The gas flowing on the line for which RAES seeks a waiver will not be used for service to any end users, only to deliver gas to the intrastate pipeline. Residences along the pipeline route are located more than 50 feet from the pipeline, which exceeds the separation distance for such pipelines in typical natural gas distribution standards.

12. The federal statute referenced by Commission Rule 20 CSR 4240-40.030(18) (49 U.S.C. 60118) states in relevant part that:

(d) WAIVERS BY STATE AUTHORITIES.

If a certification under section 60105 of this title or an agreement under section 60106 of this title is in effect, the State authority may waive compliance with a safety standard to which the certification or agreement applies in the same way and to the same extent the Secretary may waive compliance under subsection (c) of this section. However, the authority must give the Secretary written notice of the waiver at least 60 days before its effective date. If the Secretary makes a written objection before the effective date of the waiver, the waiver is stayed. After notifying the authority of the objection, the Secretary shall provide a prompt opportunity for a hearing. The Secretary shall make the final decision on granting the waiver.

13. RAES asks that the Commission grant the permanent waiver requested herein and take such further steps as are necessary to confirm the non-objection of the United States Secretary of Transportation.

CONDITIONS

14. In conjunction with a grant of the waiver requested herein, RAES

recommends that the Commission include the following conditions:

- a. RAES may not serve any Missouri customers from this pipeline without prior Commission approval;
- b. RAES will perform a pressure test of the pipeline to a pressure of 188 psig to establish the new MAOP of 125 psig;
- c. RAES shall conduct leakage surveys and patrols along the entire length of the pipeline at intervals not exceeding four and one-half (4½) months, but at least four (4) times per calendar year;
- d. RAES shall conduct a class location study of the RAES transmission pipeline annually, notifying Commission Staff of any class location changes within 30 days of discovery; and,
- e. Whenever RAES is made aware (through notification by Missouri One Call, or other source) that its pipeline lies within the area described in the notice of excavation, or is within two (2) feet of such area, in addition to following the requirements of RSMo Chapter 319 to locate its line, RAES will have personnel onsite monitoring for damages to its pipeline during excavation work.

20 CSR 4240-4.017(1) WAIVER

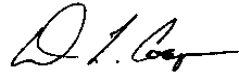
15. Rule 20 CSR 4240-4.017(1) provides that “(a)ny person that intends to file a case shall file a notice with the secretary of the commission a minimum of sixty (60) days prior to filing such a case.” A notice was not filed 60 days prior to the filing of this Petition, and RAES seeks a waiver of the 60-day notice requirement.

16. Rule 20 CSR 4240-4.017(1)(D) provides that a waiver may be granted for good cause. Good cause exists in this case. RAES declares (as verified below) that it has had not communication with the office of the Commission (as defined by Commission Rule 20 CSR 4240-4.015(10)) within the prior 150 days regarding any substantive issue likely to be in this case, other than those pleadings filed for record. Accordingly, for good cause shown, RAES moves for a waiver of the 60-day notice

requirement of Rule 20 CSR 4240-4.017(1) and acceptance of this Application.

WHEREFORE, RAES respectfully requests the Commission to grant the Company a waiver from the requirements of Commission Rule 20 CSR 4240-40.030(3)(I)(3)(B)(I), as described herein.

Respectfully submitted,



Dean L. Cooper Mo. Bar 36592
BRYDON, SWEARENGEN & ENGLAND P.C.
312 East Capitol Avenue
P.O. Box 456
Jefferson City, MO 65102-0456
Telephone: (573) 635-7166
dcooper@brydonlaw.com

ATTORNEYS FOR ROESLEIN
ALTERNATIVE ENERGY SERVICES, LLC

CERTIFICATE OF SERVICE

The undersigned certifies that a true and correct copy of the foregoing document was sent by electronic mail to the following counsel this 12th day of September, 2022:

Office of the General Counsel
staffcounsel@psc.mo.gov

Office of the Public Counsel
opc@opc.mo.gov



STATE OF MISSOURI



John R. Ashcroft
Secretary of State

CORPORATION DIVISION
CERTIFICATE OF GOOD STANDING

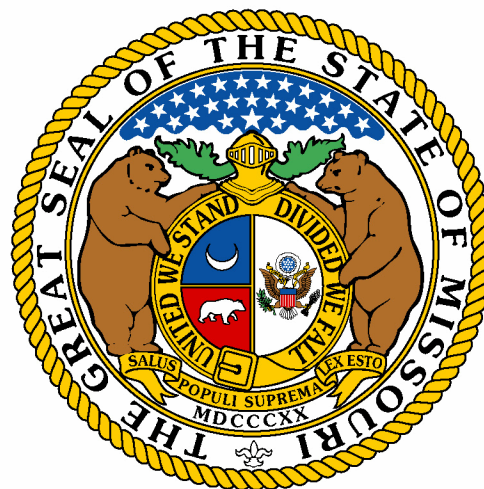
I, JOHN R. ASHCROFT, Secretary of State of the STATE OF MISSOURI, do hereby certify that the records in my office and in my care and custody reveal that

Roeslein Alternative Energy Services, LLC
LC001479382

was created under the laws of this State on the 15th day of February, 2016, and is active, having fully complied with all requirements of this office.

IN TESTIMONY WHEREOF, I hereunto set my hand and cause to be affixed the GREAT SEAL of the State of Missouri. Done at the City of Jefferson, this 6th day of September, 2022.

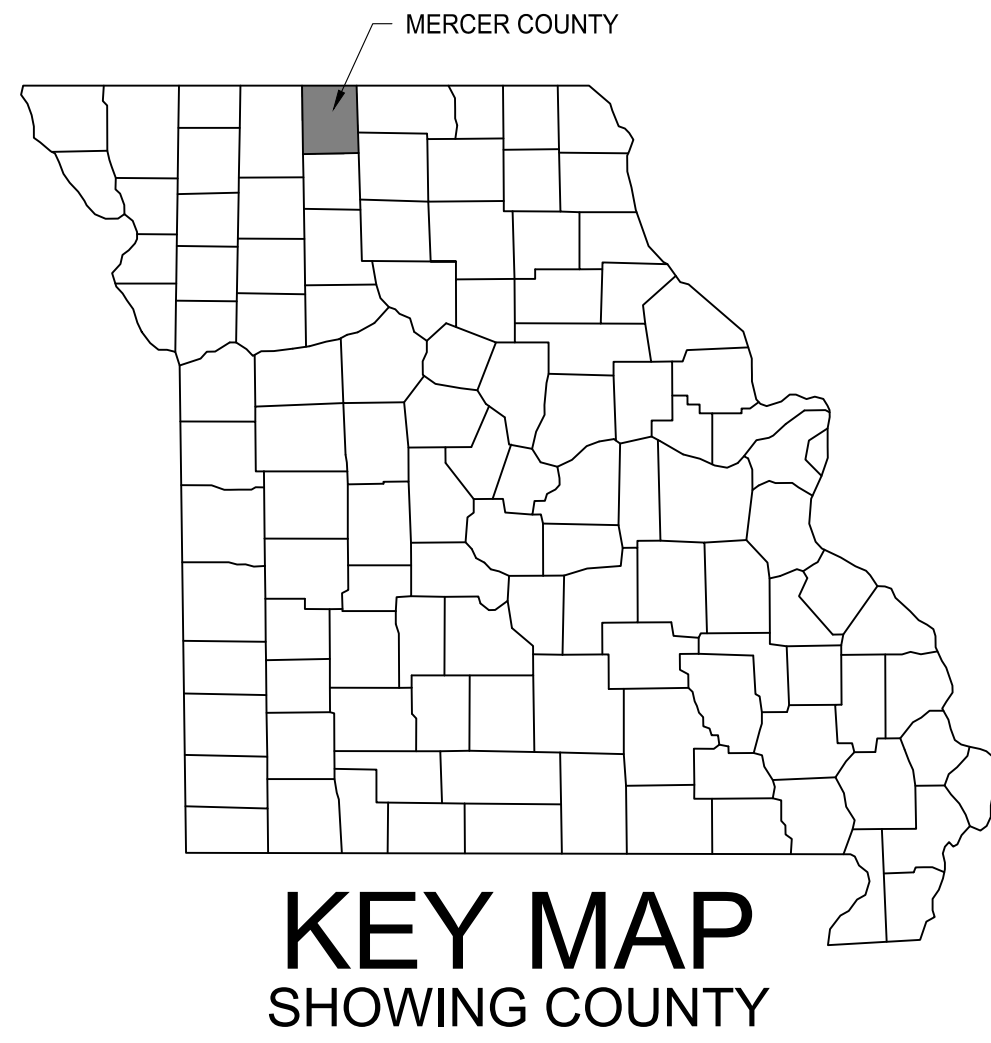

Secretary of State



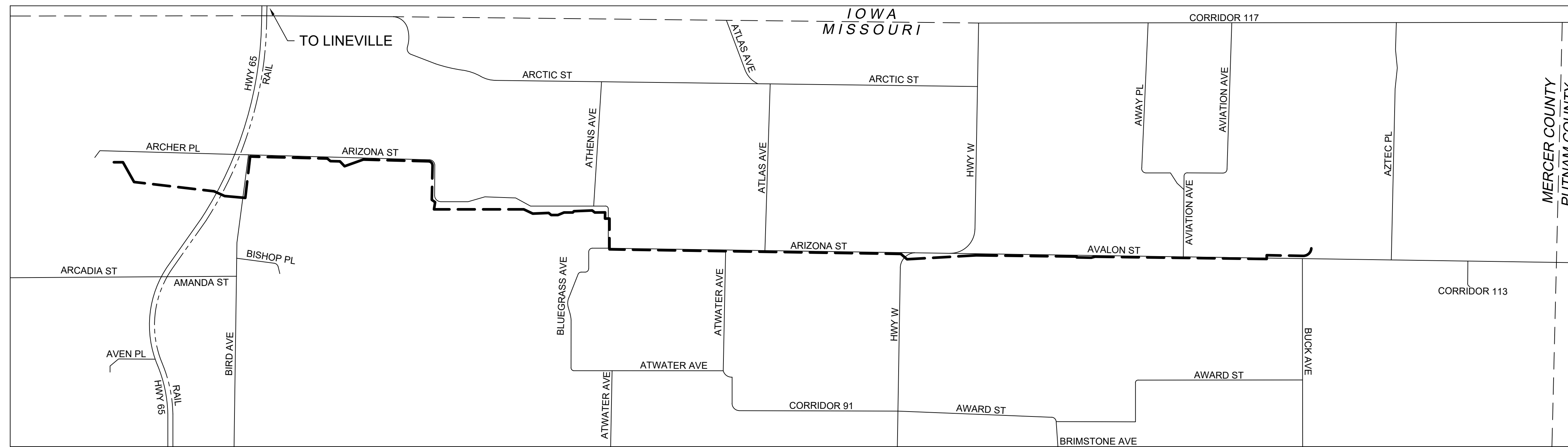
Certification Number: CERT-09062022-0018



SOMERSET TO TP2 BIOGAS PIPELINE MERCER COUNTY, MISSOURI



SHEET INDEX	
Sheet Number	Sheet Title
C001	COVER SHEET
C002	SITE MAP
C003	NOTES & SPECS
C004	PIPELINE SPEC 1
C005	DETAILS
C101	SEGMENT 1
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C115	SEGMENT 15
C116	SEGMENT 16



**SOMERSET TO TP2
GAS PIPELINE
MERCER COUNTY, MISSOURI**
COVER SHEET

THIS DOCUMENT HAS BEEN ELECTRONICALLY SIGNED, SEALED AND DATED.

Christopher M. Sander
MO PE-2001004658
June 1, 2021

ISSUE DATE
8/16/2019
REVISIONS
#1 IFC - 2019-10-03
#2 REVISE AREA 3000 LOCATION 2019-11-07
#3 ADDITIONAL RR BORE DETAILS 2019-11-18
#4 STA 0+00 TO 9+00 REVISION
#5 AS-BUILT 2021-05-28

ENGINEER: CMS
DESIGNED BY: BCR
DRAWN BY: BCR
CHECKED BY: CMS

McClure PROJECT No.
190176
SHEET No.

C001

STANDARD LEGEND (PLAN VIEW)

	SANITARY SEWER MANHOLE		TELEPHONE PEDESTAL
	SANITARY SEWER CLEANOUT		CABLE TV MANHOLE / VAULT
	AIR RELEASE MANHOLE/ DRAIN		CABLE TV PEDESTAL
	MANHOLE STORM SEWER MANHOLE		GAS VALVE
	STORM SEWER CLEANOUT		BOLLARD (BUMPER POST)
	STORM SEWER INTAKE		ROADWAY SIGN
	STORM SEWER BEEHIVE INTAKE		MAILBOX
	FLARED END SECTION		WELL
	FIRE HYDRANT		DECIDUOUS TREE
	WATER VALVE		EVERGREEN TREE
	WATER VALVE MANHOLE		SHRUB OR BUSH
	CURB STOP		TREE OR SHRUB LINE
	WATER METER MANHOLE		STUMP
	YARD HYDRANT		MONITORING WELL
	ELECTRIC MANHOLE / VAULT		SOIL BORINGS
	ELECTRIC PEDESTAL /		FLAG POLE
	TRANSFORMER		SATELLITE DISH
	OUTDOOR ELECTRIC POWER OUTLET		SLOPE INDICATORS
	POWER POLE		CONTROL POINT
	POWER POLE w/ STREET LIGHT		BENCHMARK
	STREET LIGHT POLE		SECTION CORNER
	GUY WIRE		IRON PIN SET
	TRAFFIC SIGNAL		IRON PIN FOUND
	TRAFFIC SIGNAL BOX		
	TRAFFIC SIGNAL MANHOLE / VAULT		
	RAILROAD CROSSING SIGNAL		
	TELEPHONE MANHOLE / VAULT		
	EXISTING WATERLINE		
	EXISTING FENCE		
	EXISTING TELEPHONE LINE		
	EXISTING UNDERGROUND GAS LINE		
	EXISTING OVERHEAD POWER		
	EXISTING EDGE OF CONCRETE		
	EXISTING EDGE OF ASPHALT		
	EXISTING EDGE OF GRAVEL		
	EXISTING SANITARY SEWER LINE		
	PROPERTY LINE		
	CENTERLINE OF ROAD		
	EXISTING MAJOR CONTOUR		
	EXISTING MINOR CONTOUR		

REVISION TABLE		C001	C002	C003	C004	C005	C101	C102	C103	C104	C105	C106	C107	C108	C109	C110	C111	C112	C113	C114	C115	C116	
0	8/16/19	ISSUE FOR BID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1	10/3/2019	ISSUE FOR CONSTRUCTION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	11/7/2019	REVISE AREA 3000 LOCATION	X																				
3	11/18/2019	ADDITIONAL RR BORE DETAIL						X															
4	2/21/2020	STA 0+00 TO 9+00 REVISION					X																
5	6/1/2021	AS-BUILT	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

P:\190176-06-Drawings\CIVIL\AS-BUILT\COVER SHEET.dwg 6/1/2021 10:25 AM



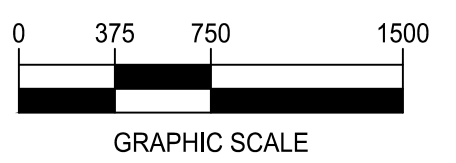
making lives better.

1901 PENNSYLVANIA AVE.
COLUMBIA, MO 65202
(573) 814-1568

CERTIFICATE OF AUTHORITY
No. E-2006023253



NORTH



CONTROL POINTS TABLE				
CONTROL POINTS	DESCRIPTION	NORTHING	EASTING	ELEVATION
50	CP 1/2	1722315.32'	1389477.45'	1087.24'
51	CP 1/2	1722479.37'	1385349.87'	1058.90'
52	CP 1/2	1722600.71'	1378342.42'	1099.67'
53	CP 1/2	1722667.57'	1372461.61'	1054.91'
54	CP 1/2	1722591.70'	1376738.83'	1096.46'
55	CP 1/2	1722756.83'	1369197.46'	1092.08'
56	CP 1/2	1725180.02'	1361525.62'	1082.94'
57	CP 1/2	1725800.23'	1355489.00'	1095.58'
58	CP 1/2	1725936.86'	1351215.55'	1068.66'
60	TBM 80PNY	1725924.23'	1351235.02'	1069.95'
201	CP- HT	1725658.14'	1351134.35'	1083.26'
203	BM - NAIL IN PP	1725906.87'	1351254.36'	1073.42'
300	CP TRAV STA	1722669.80'	1371253.78'	1023.90'
301	CP TRAV STA	1722651.67'	1371406.06'	1026.26'
23205	CP- SKW TP50	1722315.31'	1389477.53'	1087.33'
23206	CP- CESO 206	1722329.66'	1389485.75'	1086.86'
23225	TBM- EXISTR	1722325.48'	1389415.29'	1086.56'
32496	CP	1722450.65'	1384208.16'	1020.38'
32497	CP	1722453.88'	1384129.38'	1018.83'
34306	CP	1722383.95'	1382883.84'	1010.87'
34307	CP	1722369.47'	1382938.44'	1017.50'
34312	CP	1723816.12'	1364243.12'	988.38'
34328	CP	1723968.12'	1364104.07'	987.97'
34344	CP	1723953.76'	1364018.32'	988.90'
34361	CP	1723776.28'	1365269.59'	1033.19'
34370	CP	1723709.03'	1365276.78'	1033.58'
81716	CP	1723771.66'	1365232.76'	1029.02'
81717	CP	1723806.73'	1365361.36'	1044.44'

SOMERSET TO TP2
 GAS PIPELINE
 MERCER COUNTY, MISSOURI
 SITE MAP

THIS DOCUMENT HAS BEEN ELECTRONICALLY SIGNED, SEALED AND DATED.

Christopher M. Sander
MO PE-2001004658
June 1, 2021


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ENGINEER
CMS
DRAWN BY
BCR

DESIGNED BY
BCR
CHECKED BY
CMS

McCLURE PROJECT No.
190176
SHEET No.
C002

This content is from the eCFR and is authoritative but unofficial.

 Displaying title 49, up to date as of 8/19/2022. Title 49 was last amended 8/16/2022.

Title 49 - Transportation

Subtitle B - Other Regulations Relating to Transportation

Chapter I - Pipeline and Hazardous Materials Safety Administration, Department of Transportation

Subchapter D - Pipeline Safety

Part 192 - Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards

Subpart C - Pipe Design

EDITORIAL NOTE ON PART 192

Editorial Note: Nomenclature changes to part 192 appear at 71 FR 33406, June 9, 2006.

§ 192.121 Design of plastic pipe.

- (a) **Design pressure.** The design pressure for plastic pipe is determined in accordance with either of the following formulas:

$$P = 2S \frac{t}{(D - t)} (DF)$$

$$P = \frac{2S}{(SDR - 1)} (DF)$$

P = Design pressure, gage, psi (kPa).

S = For thermoplastic pipe, the hydrostatic design basis (HDB) is determined in accordance with the listed specification at a temperature equal to 73 °F (23 °C), 100 °F (38 °C), 120 °F (49 °C), or 140 °F (60 °C). In the absence of an HDB established at the specified temperature, the HDB of a higher temperature may be used in determining a design pressure rating at the specified temperature by arithmetic interpolation using the procedure in Part D.2 of PPI TR-3/2012, (incorporated by reference, see § 192.7). For reinforced thermosetting plastic pipe, 11,000 psig (75,842 kPa).

t = Specified wall thickness, inches (mm).

D = Specified outside diameter, inches (mm).

SDR = Standard dimension ratio, the ratio of the average specified outside diameter to the minimum specified wall thickness, corresponding to a value from a common numbering system that was derived from the American National Standards Institute (ANSI) preferred number series 10.

DF = Design Factor, a maximum of 0.32 unless otherwise specified for a particular material in this section

- (b) **General requirements for plastic pipe and components.**

- (1) Except as provided in paragraphs (c) through (f) of this section, the design pressure for plastic pipe may not exceed a gauge pressure of 100 psig (689 kPa) for pipe used in:
 - (i) Distribution systems; or
 - (ii) Transmission lines in Class 3 and 4 locations.
- (2) Plastic pipe may not be used where operating temperatures of the pipe will be:
 - (i) Below -20 °F (-29 °C), or below -40 °F (-40 °C) if all pipe and pipeline components whose operating temperature will be below -20 °F (-29 °C) have a temperature rating by the manufacturer consistent with that operating temperature; or
 - (ii) Above the temperature at which the HDB used in the design formula under this section is determined.

- (3) Unless specified for a particular material in this section, the wall thickness of plastic pipe may not be less than 0.062 inches (1.57 millimeters).
- (4) All plastic pipe must have a listed HDB in accordance with PPI TR-4/2012 (incorporated by reference, see § 192.7).

(c) **Polyethylene (PE) pipe requirements.**

- (1) For PE pipe produced after July 14, 2004, but before January 22, 2019, a design pressure of up to 125 psig may be used, provided:
- (i) The material designation code is PE2406 or PE3408.
 - (ii) The pipe has a nominal size (Iron Pipe Size (IPS) or Copper Tubing Size (CTS)) of 12 inches or less (above nominal pipe size of 12 inches, the design pressure is limited to 100 psig); and
 - (iii) The wall thickness is not less than 0.062 inches (1.57 millimeters).
- (2) For PE pipe produced on or after January 22, 2019, a DF of 0.40 may be used in the design formula, provided:
- (i) The design pressure does not exceed 125 psig;
 - (ii) The material designation code is PE2708 or PE4710;
 - (iii) The pipe has a nominal size (IPS or CTS) of 24 inches or less; and
 - (iv) The wall thickness for a given outside diameter is not less than that listed in table 1 to this paragraph (c)(2)(iv).

Table 1 to Paragraph (c)(2)(iv)

PE pipe: minimum wall thickness and SDR values		
Pipe size (inches)	Minimum wall thickness (inches)	Corresponding SDR (values)
1/2" CTS	0.090	7
1/2" IPS	0.090	9.3
3/4" CTS	0.090	9.7
3/4" IPS	0.095	11
1" CTS	0.099	11
1" IPS	0.119	11
1 1/4" IPS	0.151	11
1 1/2" IPS	0.173	11
2"	0.216	11
3"	0.259	13.5
4"	0.265	17
6"	0.315	21
8"	0.411	21
10"	0.512	21

PE pipe: minimum wall thickness and SDR values		
Pipe size (inches)	Minimum wall thickness (inches)	Corresponding SDR (values)
12"	0.607	21
16"	0.762	21
18"	0.857	21
20"	0.952	21
22"	1.048	21
24"	1.143	21

(d) **Polyamide (PA-11) pipe requirements.**

- (1) For PA-11 pipe produced after January 23, 2009, but before January 22, 2019, a DF of 0.40 may be used in the design formula, provided:
- (i) The design pressure does not exceed 200 psig;
 - (ii) The material designation code is PA32312 or PA32316;
 - (iii) The pipe has a nominal size (IPS or CTS) of 4 inches or less; and
 - (iv) The pipe has a standard dimension ratio of SDR-11 or less (*i.e.*, thicker wall pipe).
- (2) For PA-11 pipe produced on or after January 22, 2019, a DF of 0.40 may be used in the design formula, provided:
- (i) The design pressure does not exceed 250 psig;
 - (ii) The material designation code is PA32316;
 - (iii) The pipe has a nominal size (IPS or CTS) of 6 inches or less; and
 - (iv) The minimum wall thickness for a given outside diameter is not less than that listed in table 2 to paragraph (d)(2)(iv):

Table 2 to Paragraph (d)(2)(iv)

PA-11 pipe: minimum wall thickness and SDR values		
Pipe size (inches)	Minimum wall thickness (inches)	Corresponding SDR (values)
1/2" CTS	0.090	7.0
1/2" IPS	0.090	9.3
3/4" CTS	0.090	9.7
3/4" IPS	0.095	11
1" CTS	0.099	11
1" IPS	0.119	11
1 1/4" IPS	0.151	11

PA-11 pipe: minimum wall thickness and SDR values		
Pipe size (inches)	Minimum wall thickness (inches)	Corresponding SDR (values)
1½" IPS	0.173	11
2" IPS	0.216	11
3" IPS	0.259	13.5
4" IPS	0.333	13.5
6" IPS	0.491	13.5

(e) **Polyamide (PA-12) pipe requirements.** For PA-12 pipe produced after January 22, 2019, a DF of 0.40 may be used in the design formula, provided:

- (1) The design pressure does not exceed 250 psig;
- (2) The material designation code is PA42316;
- (3) The pipe has a nominal size (IPS or CTS) of 6 inches or less; and
- (4) The minimum wall thickness for a given outside diameter is not less than that listed in table 3 to paragraph (e)(4).

Table 3 to Paragraph (e)(4)

PA-12 pipe: minimum wall thickness and SDR values		
Pipe size (inches)	Minimum wall thickness (inches)	Corresponding SDR (values)
½" CTS	0.090	7
½" IPS	0.090	9.3
¾" CTS	0.090	9.7
¾" IPS	0.095	11
1" CTS	0.099	11
1" IPS	0.119	11
1¼" IPS	0.151	11
1½" IPS	0.173	11
2" IPS	0.216	11
3" IPS	0.259	13.5
4" IPS	0.333	13.5
6" IPS	0.491	13.5

(f) **Reinforced thermosetting plastic pipe requirements.**

(1) Reinforced thermosetting plastic pipe may not be used at operating temperatures above 150 °F (66 °C). APPENDIX C

(2) The wall thickness for reinforced thermosetting plastic pipe may not be less than that listed in the following table:

Nominal size in inches (millimeters)	Minimum wall thickness in inches (millimeters)
2 (51)	0.060 (1.52)
3 (76)	0.060 (1.52)
4 (102)	0.070 (1.78)
6 (152)	0.100 (2.54)

[Amdt. 192-124, 83 FR 58716, Nov. 20, 2018, as amended at 86 FR 2238, Jan. 11, 2021]

STATE OF MISSOURI

OFFICE OF THE PUBLIC SERVICE COMMISSION

I have compared the preceding copy with the original on file in this office and I do hereby certify the same to be a true copy therefrom and the whole thereof.

WITNESS my hand and seal of the Public Service Commission, at Jefferson City, Missouri, this 13th day of September, 2022.





Morris L. Woodruff
Secretary

MISSOURI PUBLIC SERVICE COMMISSION

September 13, 2022

File/Case No. GE-2023-0096

**Missouri Public Service
Commission**

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Enclosed find a certified copy of an Order or Notice issued in the above-referenced matter(s).

Sincerely,



**Morris L. Woodruff
Secretary**

Recipients listed above with a valid e-mail address will receive electronic service. Recipients without a valid e-mail address will receive paper service.