SOUTHERN STAR
CENTRAL GAS PIPELINE



GAS QUALITY SPECIFICATIONS

Planned Tariff Changes

August 16, 2022

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Back To School Safety



- **Dropping off at school:**
  - Do not double park; it blocks visibility for other children and vehicles.
  - Do not load or unload children across the street from the school.
  - Carpool to reduce the number of vehicles at the school.
- **Sharing road with pedestrians:**
  - Do not block the crosswalk when stopped at a red light or waiting to make a turn, forcing pedestrians to go around you; this could put them in the path of moving traffi
  - Always stop for a school patrol officer or crossing guard holding up a stop sign.
  - Never pass a vehicle stopped for pedestrians.
- **Sharing the road with buses:**
  - Never pass a bus from behind – or from either direction if you're on an undivided road if it is stopped to load or unload children.
  - If the yellow or red lights are flashing and the stop arm is extended, traffic must stop.
  - The area 10 feet around a school bus is the most dangerous for children; stop far enough back to allow them space to safely enter and exit the bus.
  - Be alert; children often are unpredictable, and they tend to ignore hazards and take risks.



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UPDATED TIMELINE

- ✓ June 10, 2021 – Customer Kick-off Call *(Link to slides)*
  - Feedback requested by July 30, 2021
- ✓ Aug 12, 2021 – Customer Follow-Up Call *(Link to slides)*
  - Feedback requested by August 27, 2021
- ✓ Periodic updates during “How’s It Flowing”
- ✓ May 10, 2022 - Customer meeting update
- ✓ Q1-Q2 2022 – Additional discussions with customers (upon request)
- August 16, 2022 – Customer Update Call
  - Feedback requested by August 24, 2022
- Q3 2022 (target August 31) – File with FERC
- FERC Order (within 180 days from filing)

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Southern Star Central Gas Pipeline - Current and Proposed Quality Specifications

Component	Current Spec	2021 Proposal	2022 Plan	Notes
Carbon Dioxide (CO_2)	≤ 1% by volume	≤ 2% by volume	**1% CO2/2,000ppm O2 OR, 2% CO2/10ppm O2**	Additional Optionality
Oxygen (O_2)	≤ 2,000 ppm (0.2%)	≤ 10 ppm		Maintain system integrity LS 315, 340, & 385 at 10ppm
Nitrogen (N_2)	-	-	-	(no change)
Total Inerts	-	≤ 4% by volume	**≤ 5% by volume**	New market spec, max supply
Water/vapor Content (H_2O)	* ≤ 7 lbs/mmcf	* ≤ 7 lbs/mmcf	* ≤ 7 lbs/mmcf	*5 lbs/mmcf in WY/CO (no change)
Hydrocarbon Dewpoint (HCDP)	≤ 40 °F	≤ 25 °F	**** ≤ 40 °F**	****At flowing psia** (was @ 750 psia)
Heat Content (BTUs)	≥ 950 BTU/scf	≥ 950 BTU/scf ≤ 1100 BTU/scf	≥ 950 BTU/scf **≤ 1125 BTU/scf**	Adding a max spec
Hydrogen Sulfide (H_2S)	≤ 0.25 grains/100cf	≤ 0.25 grains/100cf	≤ 0.25 grains/100cf	(no change)
Sulphur (S)	≤ 20 grains/100cf	≤ 20 grains/100cf	≤ 20 grains/100cf	(no change)
Wobbe Index (Interchangeability)	- -	1250 BTU/scf 1400 BTU/scf	- -	Seeing benefit with max BTU
Temperature	≤ 120 °F	≤ 120 °F	≤ 120 °F	(no change)
RNG Specs	-	See Details	See Details	New specs

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Southern Star Central Gas Pipeline - Renewable Natural Gas (RNG) Quality Specifications			
Component	**2021 Proposal**	**2022 Plan**	**Notes**
Ammonia	< 10 ppmv	< 10 ppmv	Includes Ammonia and Ammonia-based byproducts
Total Bacteria	≤ 0.2 microns	≤ 0.2 microns	
Mercury	< 0.01 µg/m^3	**< 0.1 µg/m^3**	Includes Mercury and Mercury-based derivatives
Volatile Metals	< 20 µg/m^3	< 20 µg/m^3	Includes, but not limited to : lead, zinc, chromium, and manganese
VOCs and Semi-VOCs	≤ 350 ppmv	≤ 350 ppmv	Includes, but not limited to : BTEX, phthalates, N-nitroso-di-n-propylamine, and benzyl alcohols
Arsenic		**≤ 0.15 ppmv**	
Copper		**< 0.60 mg/m^3**	
Siloxanes	≤ 0.1 mg of Si/Nm^3	≤ 0.1 mg of Si/m^3	
Halocarbons	< 0.1 ppmv	< 0.1 ppmv	Includes, but not limited to: freons and chloroethane
Vinyl Chloride		**≤ 8.3 mg/m^3**	
Aldehydes and Ketones	<10 ppbv	**≤100 ppbv**	

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QUESTIONS / FEEDBACK

- Would SSC consider any other breakpoints of the CO2 & O2 option?
  - For example, 1.5% CO2 and 1,000 ppm O2?
  - **SSC expects to stay with the 2 options (existing 1% CO2 / 2,000 ppm O2 & new 2% CO2 / 10 ppm O2).**
  - **Balancing supply optionality while maintaining the necessary integrity of the pipeline.**

- How would SSC work with a supply point that has an occurrence of gas quality outside of tariff limit?
  - Would a point be shut in immediately if CO2, O2, Inerts, BTU, etc was outside of tariff limits?
  - **SSC expects to continue flexibility with point operators when such upsets occur. Each occurrence will be evaluated to ensure system and end user integrity is maintained.**

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QUESTIONS / FEEDBACK

- How much time will be allowed for operators to make adjustments and meet any tariff changes?
  - Depending on the necessary changes, funding and installation of needed equipment could take months.
  - **SSC expects the FERC to issue a decision on the proposed specs within 6 months from the filing date.**
  - **SSC expects to work with point operators that document their efforts to meet the planned specifications and the timeline for compliance.**

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WRAP-UP